



100H94~2.TXT
SEQUENCE LISTING

<110> HOLM, Jens
IPSEN, Henrik
LARSEN, Jorgen N.
SPANGFORT, Michael D.

<120> Novel mutant allergens

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<140> US 10/001,245

<141> 2001-11-15

<150> US 60/298,170

<151> 2001-06-14

<150> US 60/249,361

<151> 2000-11-16

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Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe
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Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Lys Phe Lys
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Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu
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Lys Ile Ser Asn Glu Ile Val Ile Val Ala Thr Pro Asp Gly Gly Ser
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Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Ile Gly Asp His Glu Val
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Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe
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Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Asn Phe Lys
65 70 75 80

Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu
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Lys Ile Ser Asn Glu Ile Lys Ile Val Ala Thr Gly Asp Gly Gly Ser
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Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu Val
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Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe
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Asn Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Asn Phe Lys
 65 70 75 80

Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu
 85 90 95

Ser Ile Ser Asn Glu Ile Lys Ile Val Ala Thr Pro Asp Gly Gly Ser
 100 105 110

Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu Val
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65 70 75 80

Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu
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Lys Ile Ser Asn Glu Ile Val Ile Val Ala Thr Gly Asp Gly Gly Ser
100 105 110

Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu Val
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Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe
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Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Lys Phe Lys
 65 70 75 80

Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu
 85 90 95

Lys Ile Ser Asn Glu Ile Val Ile Val Ala Thr Gly Asp Gly Gly Ser
 100 105 110

Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu Val
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Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe
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Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu
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Ser Ile Ser Asn Glu Ile Val Ile Val Ala Thr Gly Asp Gly Gly Ser
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Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu Val
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Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe
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Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Lys Phe Lys
 65 70 75 80

Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu
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Lys Ile Ser Asn Glu Ile Val Ile Val Ala Thr Pro Asp Gly Gly Ser
 100 105 110

Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Ile Gly Asp His Glu Val
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Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe
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Asn Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Asn Phe Lys
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Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu
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Ser Ile Ser Asn Glu Ile Lys Ile Val Ala Thr Gly Asn Gly Gly Ser
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Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe
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Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Lys Phe Lys
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Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu
 85 90 95

Lys Ile Ser Asn Glu Ile Val Ile Val Ala Thr Gly Asp Gly Gly Ser
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Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Ile Gly Asp His Glu Val
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Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe
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Asn Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Lys Phe Lys
65 70 75 80
Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu
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Ser Ile Ser Asn Glu Ile Val Ile Val Ala Thr Pro Asp Gly Gly Ser
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Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Ile Gly Asp His Glu Val
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Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe
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Asn Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Lys Phe Lys
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Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu
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Ser Ile Ser Asn Glu Ile Val Ile Val Ala Thr Gly Asp Gly Gly Ser
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Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Ile Gly Asp His Glu Val
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Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Glu Gly Ile 65 70 75 80
Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr 85 90 95
Val Ala Gln Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg Phe Gly 100 105 110
Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Arg 115 120 125

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Glu Ala Leu Ala Gln Thr His Ser Ala Ile Ala Val Ile Ile Gly Ile
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Lys Asp Leu Asp Ala Phe Arg His Tyr Asp Gly Gln Thr Ile Ile Gln
145 150 155 160

Glu Asp Asn Gly Tyr Gln Thr Asn Tyr His Ala Val Asn Ile Val Gly
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Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp
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Val	Ala	Glu	Glu	Gln	Ser	Cys	Arg	Arg	Pro	Asn	Ala	Gln	Arg	Phe	Gly	
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Tyr	Ser	Asn	Ala	Gln	Gly	Val	Asp	Tyr	Trp	Ile	Val	Arg	Asn	Ser	Trp	
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Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr
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Val Ala Glu Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg Phe Gly
100 105 110

Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Arg
115 120 125

Glu Ala Leu Ala Gln Thr His Ser Ala Ile Ala Val Ile Ile Gly Ile
130 135 140

Lys Asp Leu Asp Ala Phe Arg His Tyr Asp Gly Glu Thr Ile Ile Gln
145 150 155 160

Gln Asp Asn Gly Tyr Gln Thr Asn Tyr His Ala Val Asn Ile Val Gly
165 170 175

Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp
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 Arg Gln Met Glu Thr Val Thr Pro Ile Arg Met Gln Gly Cys Gly
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 Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala Tyr Leu
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 Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr
 85 90 95
 gtt gca cag gaa caa tca tgc cga cga cca aat gca caa cgt ttc ggt 336
 Val Ala Gln Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg Phe Gly
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 Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Arg
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 Lys Asp Leu Asp Ala Phe Arg His Tyr Asp Gly Glu Thr Ile Ile Gln
 145 150 155 160
 cag gat aat ggt tac caa acc aac tat cac gct gtc aac att gtt ggt 528
 Gln Asp Asn Gly Tyr Gln Thr Asn Tyr His Ala Val Asn Ile Val Gly
 165 170 175
 tac agt aac gca caa ggt gtc gat tat tgg atc gta cga aac agt tgg 576
 Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp
 180 185 190
 gat acc aat tgg ggt gat aat ggt tac ggt tat ttt gct gcc aac atc 624
 Asp Thr Asn Trp Gly Asp Asn Gly Tyr Gly Tyr Phe Ala Ala Asn Ile
 200 205 210
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	35	40		45
 Ala Val Arg Asn Gln Ser Leu Asp Leu Ala Glu Gln Glu Leu Val Asp				
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 Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Gln Gly Ile				
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 Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr				
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 Val Ala Gln Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg Phe Gly				
	100	105		110
 Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Arg				
	115	120		125
 Glu Ala Leu Ala Gln Thr His Ser Ala Ile Ala Val Ile Ile Gly Ile				
	130	135		140
 Lys Asp Leu Asp Ala Phe Arg His Tyr Asp Gly Glu Thr Ile Ile Gln				
	145	150		155
 Gln Asp Asn Gly Tyr Gln Thr Asn Tyr His Ala Val Asn Ile Val Gly				
	165	170		175
 Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp				
	180	185		190
 Asp Thr Asn Trp Gly Asp Asn Gly Tyr Gly Tyr Phe Ala Ala Asn Ile				
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Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala Tyr Leu	
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gct gtg cgt aat caa tca ttg gat ctt gct gaa caa gaa tta gtc gat	192
Ala Val Arg Asn Gln Ser Leu Asp Leu Ala Glu Gln Glu Leu Val Asp	
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tgt gct tcc caa cac ggt tgt cat ggt gat acc att cca gaa ggt att	240
Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Glu Gly Ile	
65 70 75 80	
gaa tac atc caa cat aat ggt gtc gtc caa gaa agc tac tat cga tac	288
Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr	
85 90 95	
gtt gca gaa gaa caa tca tgc cga cga cca aat gca caa cgt ttc ggt	336
Val Ala Glu Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg Phe Gly	
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gaa gct ttg gct caa acc cac agc gct att gcc gtc att att ggc atc	432
Glu Ala Leu Ala Gln Thr His Ser Ala Ile Ala Val Ile Ile Gly Ile	
130 135 140	
aaa gat tta gac gca ttc cgt cat tat gat ggc cag aca atc att caa	480
Lys Asp Leu Asp Ala Phe Arg His Tyr Asp Gly Gln Thr Ile Ile Gln	
145 150 155 160	
cag gat aat ggt tac caa acc aac tat cac gct gtc aac att gtt ggt	528
Gln Asp Asn Gly Tyr Gln Thr Asn Tyr His Ala Val Asn Ile Val Gly	
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Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp	
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Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Glu Gly Ile
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Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr
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Val Ala Glu Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg Phe Gly
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Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Arg
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Lys Asp Leu Asp Ala Phe Arg His Tyr Asp Gly Gln Thr Ile Ile Gln
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Gln Asp Asn Gly Tyr Gln Thr Asn Tyr His Ala Val Asn Ile Val Gly
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Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp
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48

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Page 25

96

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gct gtg cgt aat caa tca ttg gat ctt gct gaa caa gaa tta gtc gat Ala Val Arg Asn Gln Ser Leu Asp Leu Ala Glu Gln Glu Leu Val Asp 50 55 60			192
tgt gct aac caa cac ggt tgt cat ggt gat acc att cca cgt ggt att Cys Ala Asn Gln His Gly Cys His Gly Asp Thr Ile Pro Arg Gly Ile 65 70 75 80			240
gaa tac atc caa cat aat ggt gtc gtc caa gaa agc tac tat cga tac Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr 85 90 95			288
gtt gca gaa gaa caa tca tgc cga cga cca aat gca caa cgt ttc ggt Val Ala Glu Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg Phe Gly 100 105 110			336
atc tca aac tat tgc caa att tac cca cca aat gta aac aaa att cgt Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Arg 115 120 125			384
gaa gct ttg gct caa acc cac agc gct att gcc gtc att att ggc atc Glu Ala Leu Ala Gln Thr His Ser Ala Ile Ala Val Ile Ile Gly Ile 130 135 140			432
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cag gat aat ggt tac caa acc aac tat cac gct gtc aac att gtt ggt Gln Asp Asn Gly Tyr Gln Thr Asn Tyr His Ala Val Asn Ile Val Gly 165 170 175			528
tac agt aac gca caa ggt gtc gat tat tgg atc gta cga aac agt tgg Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp 180 185 190			576
gat acc aat tgg ggt gat aat ggt tac ggt tat ttt gct gcc aac atc Asp Thr Asn Trp Gly Asp Asn Gly Tyr Gly Tyr Phe Ala Ala Asn Ile 195 200 205			624
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Val Ala Glu Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg Phe Gly
100 105 110

Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Arg
115 120 125

Glu Ala Leu Ala Gln Thr His Ser Ala Ile Ala Val Ile Ile Gly Ile
130 135 140

Lys Asp Leu Asp Ala Phe Arg His Tyr Asp Gly Gln Thr Ile Ile Gln
145 150 155 160

Gln Asp Asn Gly Tyr Gln Thr Asn Tyr His Ala Val Asn Ile Val Gly
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gct gtg cgt aat caa tca ttg gat ctt gct gaa caa gaa tta gtc gat      192
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Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr
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gtt gca gaa gaa caa tca tgc cga cga cca aat gca caa cgt ttc ggt      336
Val Ala Glu Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg Phe Gly
                100                              105          110

atc tca aac tat tgc caa att tac cca cca aat gta aac aaa att cgt      384
Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Arg
                115                              120          125

gaa gct ttg gct caa acc cac agc gct att gcc gtc att att ggc atc      432
Glu Ala Leu Ala Gln Thr His Ser Ala Ile Ala Val Ile Ile Gly Ile
                130                              135          140

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tca tgt tgg gct ttc tct ggt gtt gcc gca act gaa tca gct tat ttg	144
Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala Tyr Leu	
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gct gtg cgt aat caa tca ttg gat ctt gct gaa caa gaa tta gtc gat	192
Ala Val Arg Asn Gln Ser Leu Asp Leu Ala Glu Gln Glu Leu Val Asp	
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tgt gct aac caa cac ggt tgt cat ggt gat acc att cca cgt ggt att	240
Cys Ala Asn Gln His Gly Cys His Gly Asp Thr Ile Pro Arg Gly Ile	
65 70 75 80	
gaa tac atc caa cat aat ggt gtc gtc caa gaa agc tac tat cga tac	288
Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr	
85 90 95	
gtt gca cag gaa caa tca tgc cga cga cca aat gca caa cgt ttc ggt	336
Val Ala Gln Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg Phe Gly	
100 105 110	
atc tca aac tat tgc caa att tac cca cca aat gta aac aaa att cgt	384
Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Arg	

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gaa gat aat ggt tac caa acc aac tat cac gct gtc aac att gtt ggt Glu Asp Asn Gly Tyr Gln Thr Asn Tyr His Ala Val Asn Ile Val Gly	165	170	175 528
tac agt aac gca caa ggt gtc gat tat tgg atc gta cga aac agt tgg Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp	180	185	190 576
gat acc aat tgg ggt gat aat ggt tac ggt tat ttt gct gcc aac atc Asp Thr Asn Trp Gly Asp Asn Gly Tyr Gly Tyr Phe Ala Ala Asn Ile	195	200	205 624
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Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala Tyr Leu	35	40	45	
Ala Val Arg Asn Gln Ser Leu Asp Leu Ala Glu Gln Glu Leu Val Asp	50	55	60	
Cys Ala Asn Gln His Gly Cys His Gly Asp Thr Ile Pro Arg Gly Ile	65	70	75	80
Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr	85	90	95	
Val Ala Gln Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg Phe Gly	100	105	110	
Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Arg	115	120	125	
Glu Ala Leu Ala Gln Thr His Ser Ala Ile Ala Val Ile Ile Gly Ile	130	135	140	

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Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp
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cga	caa	atg	cga	act	gtc	act	acc	att	cgt	atg	caa	gga	ggc	tgt	ggc	96
Arg	Gln	Met	Arg	Thr	Val	Thr	Thr	Ile	Arg	Met	Gln	Gly	Gly	Cys	Gly	
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tca	tgt	tg	gct	ttc	tct	ggc	gtt	gcc	gca	act	gaa	tca	gct	tat	ttg	144
Ser	Cys	Trp	Ala	Phe	Ser	Gly	Val	Ala	Ala	Thr	Glu	Ser	Ala	Tyr	Leu	
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gct	gtg	cgt	aat	caa	tca	ttg	gat	ctt	gct	gaa	caa	gaa	tta	gtc	gat	192
Ala	Val	Arg	Asn	Gln	Ser	Leu	Asp	Leu	Ala	Glu	Gln	Glu	Leu	Val	Asp	
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Cys	Ala	Ser	Gln	His	Gly	Cys	His	Gly	Asp	Thr	Ile	Pro	Glu	Gly	Ile	
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Glu	Tyr	Ile	Gln	His	Asn	Gly	Val	Val	Gln	Glu	Ser	Tyr	Tyr	Arg	Tyr	
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gtt	gca	cag	gaa	caa	tca	tgc	cga	cga	cca	aat	gca	gat	cgt	ttc	ggc	336
Val	Ala	Gln	Glu	Gln	Ser	Cys	Arg	Arg	Pro	Asn	Ala	Asp	Arg	Phe	Gly	
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Ile	Ser	Asn	Tyr	Cys	Gln	Ile	Tyr	Pro	Pro	Asn	Val	Asn	Lys	Ile	Glu	
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Tyr	Ser	Asn	Ala	Gln	Gly	Val	Asp	Tyr	Trp	Ile	Val	Arg	Asn	Ser	Trp	
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 50 55 60
 Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Glu Gly Ile
 65 70 75 80
 Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr
 85 90 95
 Val Ala Gln Glu Gln Ser Cys Arg Arg Pro Asn Ala Asp Arg Phe Gly
 100 105 110
 Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Glu
 115 120 125
 Glu Ala Leu Ala Gln Thr His Ser Ala Ile Ala Val Ile Ile Gly Ile
 130 135 140
 Lys Asp Leu Asp Ala Phe Arg His Tyr Asp Gly Gln Thr Ile Ile Gln
 145 150 155 160
 Glu Asp Asn Gly Tyr Gln Thr Asn Tyr His Ala Val Asn Ile Val Gly
 165 170 175
 Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp
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				85					90					95			
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Val	Ala	Glu	Glu	Gln	Ser	Cys	Arg	Arg	Pro	Asn	Ala	Asp	Arg	Phe	Gly		
			100					105					110				
atc	tca	aac	tat	tgc	caa	att	tac	cca	cca	aat	gta	aac	aaa	att	cag		384
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gat acc aat tgg ggt gat aat ggt tac ggt tat ttt gct gcc aac atc Asp Thr Asn Trp Gly Asp Asn Gly Tyr Gly Tyr Phe Ala Ala Asn Ile 195 200 205			624
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Ala Val Arg Asn Gln Ser Leu Asp Leu Ala Glu Gln Glu Leu Val Asp 50 55 60
Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Gln Gly Ile 65 70 75 80
Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr 85 90 95
Val Ala Glu Glu Gln Ser Cys Arg Arg Pro Asn Ala Asp Arg Phe Gly 100 105 110
Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Gln 115 120 125
Glu Ala Leu Ala Gln Thr His Ser Ala Ile Ala Val Ile Ile Gly Ile 130 135 140

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Gln Asp Asn Gly Tyr Gln Thr Asn Tyr His Ala Val Asn Ile Val Gly
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Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp
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Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Glu Gly Ile
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Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr
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Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Glu
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Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Glu
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Lys Asp Leu Asp Ala Phe Arg His Tyr Asp Gly Gln Thr Ile Ile Gln
 145 150 155 160

Glu Asp Asn Gly Tyr Gln Thr Asn Tyr His Ala Val Asn Ile Val Gly
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Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Phe
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 65 70 75 80

gaa tac atc caa cat aat ggt gtc gtc caa gaa agc tac tat cga tac 288
Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr
Page 40

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Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Gln Gly Ile
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Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr
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Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Gln
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Lys Asp Leu Asp Ala Phe Arg His Tyr Asp Gly Glu Thr Ile Ile Gln
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Gln Asp Asn Gly Tyr Gln Thr Asn Tyr His Ala Val Asn Ile Val Gly
165 170 175

Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Phe
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gtt ccc ggt atc gat cca aat gca tgc cat tat atg aac tgt cca ttg 240
Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Asn Cys Pro Leu
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gtt aac gga caa caa tat gat att aaa tat aca tgg aat gtt cca aaa 288
Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
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att gca cca aac tct gaa aat gtt gtc gtc act gtt aaa gtt ttg ggt 336
Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
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gat aat ggt gtt ttg gcc tgt gct att gct act cat gct aaa atc cgc 384
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Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp
50 55 60

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100H94~2.TXT

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aaa cca ttc caa ttg gaa gct tta ttc gaa gcc aat caa aac tca gcg 144
Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
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ggt ccc ggt atc gat cca aat gca tgc cat tat atg aac tgt cca ttg			240
Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Asn Cys Pro Leu			
65	70	75	80
ggt aac gga caa caa tat gat att aaa tat aca tgg aat gtt cca aaa			288
Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys			
	85	90	95
att gca cca aaa tct gaa aat gtt gtc gtc act gtt aaa gtt ttg ggt			336
Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly			
	100	105	110
gat aat ggt gtt ttg gcc tgt gct att gct act cat gct aaa atc cag			384
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Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp
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Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Asn Cys Pro Leu
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Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile Gly Arg Gly
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65 70 75 80

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Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp	
50 55 60	
gtt ccc ggt atc gat cca aat gca tgc cat tat atg aac tgt cca ttg	240
Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Asn Cys Pro Leu	
65 70 75 80	
gtt aac gga caa caa tat gat att aaa tat aca tgg aat gtt cca aaa	288
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gat aat ggt gtt ttg gcc tgt gct att gct act cat gct aaa atc cag	384
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Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
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Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp
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Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Asn Cys Pro Leu
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Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
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Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile Gly Arg Gly
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aca gct aaa att gaa atc aaa gct tca atc gat ggt tta agc gtt gat      192
Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp
50 55 60

gtt ccc ggt atc gat cca aat gca tgc cat tat atg aac tgt cca ttg      240
Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Asn Cys Pro Leu
65 70 75 80

gtt aac gga caa caa tat gat att aaa tat aca tgg aat gtt cca aaa      288
Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
85 90 95

att gca cca aac tct gaa aat gtt gtc gtc act gtt aaa gtt ttg ggt      336
Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
100 105 110

gat aat ggt gtt ttg gcc tgt gct att gct act cat gct aaa atc cag      384
Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln
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gat
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Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp
50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Asn Cys Pro Leu
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Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
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Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile His Ser Gly
20 25 30

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Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
35 40 45

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Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu	
65 70 75 80	
ggt aac gga caa caa tat gat att aaa tat aca tgg aat gtt cca aaa	288
Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys	
85 90 95	
att gca cca aac tct gaa aat gtt gtc gtc act gtt aaa gtt ttg ggt	336
Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly	
100 105 110	
gat aat ggt gtt ttg gcc tgt gct att gct act cat gct aaa atc cgc	384
Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg	
115 120 125	
gat	387
Asp	

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Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile His Ser Gly
20 25 30
Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
35 40 45
Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp
50 55 60
Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu
65 70 75 80
Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
85 90 95
Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
100 105 110
Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg
115 120 125
Asp

100H94~2.TXT

<210> 49
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 <213> Dermatophagoides pteronyssinus

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gat caa gtc gat gtc aaa gat tgt gcc aat cat gaa atc aaa gaa gtt	48
Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Glu Val	
1 5 10 15	
ttg gta cca gga tgc cat ggt aac gaa cca tgt atc att cat agc ggt	96
Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile His Ser Gly	
20 25 30	
aaa cca ttc caa ttg gaa gct tta ttc gaa gcc aat caa aac tca gcg	144
Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala	
35 40 45	
aca gct aaa att gaa atc aaa gct tca atc gat ggt tta agc gtt gat	192
Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp	
50 55 60	
ggt ccc ggt atc gat cca aat gca tgc aac tat atg aaa tgt cca ttg	240
Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu	
65 70 75 80	
ggt aac gga caa caa tat gat att aaa tat aca tgg aat gtt cca aaa	288
Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys	
85 90 95	
att gca cca aaa tct gaa aat gtt gtc gtc act gtt aaa gtt ttg ggt	336
Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly	

100H94~2.TXT

100		105		110	
gat aat ggt gtt ttg gcc tgt gct att gct act cat gct aaa atc cag					384
Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln					
115		120		125	

gat	387
Asp	

<210> 50
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<400> 50

Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Glu Val
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Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile His Ser Gly
20 25 30

Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp
50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu
65 70 75 80

Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
85 90 95

Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
100 105 110

Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln
115 120 125

Asp

<210> 51
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Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Glu Val
1          5          10          15
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ttg gta cca gga tgc cat ggt aac gaa cca tgt atc att cat agc ggt 96
Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile His Ser Gly
20 25 30

aaa cca ttc caa ttg gaa gct tta ttc gaa gcc aat caa aac tca gcg 144
Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
35 40 45

aca gct aaa att gaa atc aaa gct tca atc gat ggt tta gaa gtt gat 192
Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp
50 55 60

gtt ccc ggt atc gat cca aat gca tgc aac tat atg aaa tgt cca ttg 240
Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu
65 70 75 80

ggt aac gga caa caa tat gat att aaa tat aca tgg aat gtt cca aaa 288
Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
85 90 95

att gca cca aac tct gaa aat gtt gtc gtc act gtt aaa gtt ttg ggt 336
Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
100 105 110

gat aat ggt gtt ttg gcc tgt gct att gct act cat gct aaa atc cag 384
Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln
115 120 125

gat	387
Asp	

<210>	52
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<212>	PRT

100H94~2.TXT

<213> Dermatophagoides pteronyssinus

<400> 52

Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Glu Val
 1 5 10 15

Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile His Ser Gly
 20 25 30

Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
 35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp
 50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu
 65 70 75 80

Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
 85 90 95

Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
 100 105 110

Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln
 115 120 125

Asp

<210> 53
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<400> 53
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 Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Glu Val
 1 5 10 15
 ttg gta cca gga tgc cat ggt aac gaa cca tgt atc att cat agc ggt 96
 Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile His Ser Gly
 20 25 30
 aaa cca ttc caa ttg gaa gct tta ttc gaa gcc aat caa aac tca gcg 144
 Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Glu Asn Ser Ala
 35 40 45
 aca gct aaa att gaa atc aaa gct tca atc gat ggt tta gaa gtt gat 192
 Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp
 50 55 60
 gtt ccc ggt atc gat cca aat gca tgc aac tat atg aaa tgt cca ttg 240
 Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu
 65 70 75 80
 gtt aac gga caa caa tat gat att aaa tat aca tgg aat gtt cca aaa 288
 Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
 85 90 95
 att gca cca aac tct gaa aat gtt gtc gtc act gtt aaa gtt ttg ggt 336
 Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
 100 105 110
 gat aat ggt gtt ttg gcc tgt gct att gct act cat gct aaa atc cag 384
 Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln
 115 120 125
 gat 387
 Asp

<210> 54
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 <213> Dermatophagoides pteronyssinus

<400> 54
 Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Glu Val
 1 5 10 15
 Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile His Ser Gly
 20 25 30
 Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
 35 40 45

100H94~2.TXT

Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp
50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu
65 70 75 80

Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
85 90 95

Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
100 105 110

Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln
115 120 125

Asp

<210> 55
<211> 387
<212> DNA
<213> Dermatophagoides pteronyssinus

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<400> 55

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gat Asp 1	caa Gln	gtc Val	gat Asp	gtc Val 5	aaa Lys	gat Asp	tgt Cys	gcc Ala 10	aat Asn	cat His	gaa Glu	atc Ile	aaa Lys	gaa Glu 15	ggt Val	48
ttg Leu	gta Val	cca Pro	gga Gly 20	tgc Cys	cat His	ggt Gly	tca Ser	gaa Glu 25	cca Pro	tgt Cys	atc Ile	att Ile	cat His 30	agc Ser	ggt Gly	96
aaa Lys	cca Pro	ttc Phe 35	caa Gln	ttg Leu	gaa Glu	gct Ala 40	tta Leu	ttc Phe	gaa Glu	gcc Ala	aat Asn 45	caa Gln	aac Asn	tca Ser	gcg Ala	144
aca Thr	gct Ala 50	aaa Lys	att Ile	gaa Glu	atc Ile	aaa Lys 55	gct Ala	tca Ser	atc Ile	gat Asp	ggt Gly 60	tta Leu	agc Ser	ggt Val	gat Asp	192
ggt Val 65	ccc Pro	ggt Gly	atc Ile	gat Asp	cca Pro 70	aat Asn	gca Ala	tgc Cys	aac Asn	tat Tyr 75	atg Met	aaa Lys	tgt Cys	cca Pro	ttg Leu 80	240
ggt Val	aac Asn	gga Gly	caa Gln 85	caa Gln	tat Tyr	gat Asp	att Ile	aaa Lys	tat Tyr 90	aca Thr	tgg Trp	aat Asn	ggt Val	cca Pro 95	aaa Lys	288
att Ile	gca Ala	cca Pro	aac Asn 100	tct Ser	gaa Glu	aat Asn	ggt Val	gtc Val 105	gtc Val	act Thr	ggt Val	aaa Lys	ggt Val 110	ttg Leu	ggt Gly	336
gat Asp	aat Asn	ggt Gly 115	ggt Val	ttg Leu	gcc Ala	tgt Cys	gct Ala 120	att Ile	gct Ala	act Thr	cat His	gct Ala 125	aaa Lys	atc Ile	cag Gln	384
gat Asp																387

<210> 56
 <211> 129
 <212> PRT
 <213> Dermatophagoides pteronyssinus

<400> 56

Asp 1	Gln	Val	Asp	Val 5	Lys	Asp	Cys	Ala	Asn 10	His	Glu	Ile	Lys	Glu 15	Val
Leu	Val	Pro	Gly 20	Cys	His	Gly	Ser	Glu 25	Pro	Cys	Ile	Ile	His 30	Ser	Gly
Lys	Pro	Phe 35	Gln	Leu	Glu	Ala	Leu 40	Phe	Glu	Ala	Asn 45	Gln	Asn	Ser	Ala
Thr	Ala 50	Lys	Ile	Glu	Ile	Lys 55	Ala	Ser	Ile	Asp	Gly 60	Leu	Ser	Val	Asp
Val 65	Pro	Gly	Ile	Asp	Pro 70	Asn	Ala	Cys	Asn	Tyr 75	Met	Lys	Cys	Pro	Leu 80
Val	Asn	Gly	Gln 85	Gln	Tyr	Asp	Ile	Lys	Tyr 90	Thr	Trp	Asn	Val	Pro 95	Lys

Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
100 105 110

Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln
115 120 125

Asp

<210> 57
<211> 387
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<213> Dermatophagoides pteronyssinus

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<400> 57
gat caa gtc gat gtc aaa gat tgt gcc aat cat gaa atc aaa aaa gtt 48
Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val
1 5 10 15

ttg gta cca gga tgc cat ggt aac gaa cca tgt atc att cat agc ggt 96
Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile His Ser Gly
20 25 30

aaa cca ttc caa ttg gaa gct tta ttc gaa gcc aat caa aac tca gcg 144
Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
35 40 45

aca gct aaa att gaa atc aaa gct tca atc gat ggt tta agc gtt gat 192
Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp

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50	55	60	
ggt ccc ggt atc gat cca aat gca tgc aac tat atg aaa tgt cca ttg Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu 65 70 75 80			240
ggt aac gga caa caa tat gat att aaa tat aca tgg aat gtt cca aaa Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys 85 90 95			288
att gca cca aac tct gaa aat gtt gtc gtc act gtt aaa gtt ttg ggt Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly 100 105 110			336
gat aat ggt gtt ttg gcc tgt gct att gct act cat gct aaa atc cag Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln 115 120 125			384
gat Asp			387

<210> 58
 <211> 129
 <212> PRT
 <213> Dermatophagoides pteronyssinus

<400> 58

Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val
1 5 10 15

Leu Val Pro Gly Cys His Gly Asn Glu Pro Cys Ile Ile His Ser Gly
20 25 30

Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Ala
35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp
50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu
65 70 75 80

Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
85 90 95

Ile Ala Pro Asn Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
100 105 110

Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Gln
115 120 125

Asp

<210> 59
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<400> 59
gcc gat ctc ggt tac ggc ccc gcc acc cca gct gcc ccg gcc gcc ggc 48
Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
1 5 10 15

tac acc ccc gcc acc ccc gcc gcc ccg gcc gga gcg gag cca gca ggt 96
Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
20 25 30

aag gcg acg acc gag gag cag aag ctg atc gag aag aaa aac gcc ggc 144
Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly

ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag 192
Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
50 55 60

tac agg acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc 240
Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
65 70 75 80

gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc 288
Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
85 90 95

aag gcc gcg ctc acc tcc aag ctc gac gcc gcc tac aag ctc gcc tac 336
Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
100 105 110

aag aca gcc gag ggc gcg acg cct gag gcc aag tac gac gcc tac gtc 384
Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
115 120 125

gcc acc gta agc agc gcg ctc cgc atc atc gcc ggc acc ctc gag gtc 432
Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val
130 135 140

100H94~2.TXT

cac His 145	gcc Ala	gtc Val	aag Lys	ccc Pro	gcg Ala 150	gcc Ala	gag Glu	gag Glu	gtc Val 155	aag Lys	gtc Val	atc Ile	ccc Pro	gcc Ala	ggc Gly 160	480
gag Glu	ctg Leu	cag Gln	gtc Val 165	atc Ile	gag Glu	aag Lys	gtc Val	gac Asp	gcc Ala 170	gcc Ala	ttc Phe	aag Lys	gtc Val	gct Ala 175	gcc Ala	528
acc Thr	gcc Ala	gcc Ala	aac Asn 180	gcc Ala	gcc Ala	ccc Pro	gcc Ala	aac Asn 185	gac Asp	aag Lys	att Ile	acc Thr	gtc Val 190	ttc Phe	gag Glu	576
gcc Ala	gcc Ala	ttc Phe 195	aac Asn	gac Asp	gcc Ala	atc Ile	aag Lys 200	gcg Ala	agc Ser	acg Thr	ggc Gly 205	ggc Gly	gcc Ala	tac Tyr	gag Glu	624
agc Ser	tac Tyr 210	aag Lys	ttc Phe	atc Ile	ccc Pro	gcc Ala 215	ctg Leu	gag Glu	gcc Ala	gcc Ala	gtc Val 220	aag Lys	aaa Lys	gcc Ala	tac Tyr	672
gcc Ala 225	gcc Ala	acc Thr	gtc Val	gcc Ala	acc Thr 230	gcg Ala	ccg Pro	gag Glu	gtc Val	aag Lys 235	tac Tyr	act Thr	gtc Val	ttt Phe	gag Glu 240	720
acc Thr	gca Ala	gaa Glu	aaa Lys	aag Lys 245	gcc Ala	atc Ile	acc Thr	gcc Ala	atg Met 250	tcc Ser	gaa Glu	gca Ala	aaa Lys	aag Lys 255	gct Ala	768
gcc Ala	aag Lys	ccc Pro	gcc Ala 260	gcc Ala	gct Ala	gcc Ala	acc Thr	gcc Ala 265	acc Thr	gca Ala	acc Thr	gcc Ala	gcc Ala 270	gtt Val	ggc Gly	816
gcg Ala	gcc Ala	acc Thr 275	ggc Gly	gcc Ala	gcc Ala	acc Thr	gcc Ala 280	gct Ala	act Thr	ggg Gly	ggc Gly	tac Tyr 285	aaa Lys	gtc Val		861

<210> 60
 <211> 287
 <212> PRT
 <213> Phleum pratense

<400> 60

Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
1 5 10 15

Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
20 25 30

Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
35 40 45

Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
50 55 60

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
85 90 95

100H94~2.TXT

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
115 120 125

Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val
130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu
180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
195 200 205

Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr
210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu
225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
245 250 255

Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Val Gly
260 265 270

Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
275 280 285

<210> 61
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<220>
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100H94~2.TXT

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 Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
 1 5 10 15
 tac acc ccc gcc acc ccc gcc gcc ccg gcc gga gcg gag cca gca ggt 96
 Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
 20 25 30
 aag gcg acg acc gag gag cag aag ctg atc gag aag atc aac gcc ggc 144
 Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly
 35 40 45
 ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag 192
 Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
 50 55 60
 tac aac acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc 240
 Tyr Asn Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
 65 70 75 80
 gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc 288
 Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
 85 90 95
 aag gcc gcg ctc acc tcc aag ctc gac gcc gcc tac aag ctc gcc tac 336
 Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
 100 105 110
 aag aca gcc gag ggc gcg acg cct gag gcc aag tac gac gcc tac gtc 384
 Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
 115 120 125
 gcc acc gta agc agc gcg ctc cgc atc atc gcc ggc acc ctc gag gtc 432
 Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val
 130 135 140
 cac gcc gtc aag ccc gcg gcc gag gag gtc aag gtc atc ccc gcc ggc 480
 His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
 145 150 155 160
 gag ctg cag gtc atc gag aag gtc gac gcc gcc ttc aag gtc gct gcc 528
 Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
 165 170 175
 acc gcc gcc aac gcc gcc ccc gcc aac gac aag att acc gtc ttc gag 576
 Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu
 180 185 190
 gcc gcc ttc aac gac gcc atc aag gcg agc acg ggc ggc gcc tac gag 624
 Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
 195 200 205
 agc tac aag ttc atc ccc gcc ctg gag gcc gcc gtc aag aaa gcc tac 672
 Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr
 Page 67

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220

210	215																
gcc gcc acc gtc gcc acc gcg ccg gag gtc aag tac act gtc ttt gag																	720
Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu																	240
225					230				235								
acc gca gaa aaa aag gcc atc acc gcc atg tcc gaa gca aaa aag gct																	768
Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala																	255
				245				250									
gcc aag ccc gcc gcc gct gcc acc gcc acc gca acc gcc gcc gtt ggc																	816
Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly																	270
				260				265									
gcg gcc acc ggc gcc gcc acc gcc gct act ggt ggc tac aaa gtc																	861
Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val																	285
				275				280									

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Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
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Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly
35 40 45

Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
50 55 60

Tyr Asn Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
85 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
115 120 125

Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val
130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
165 170 175

100H94~2.TXT

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu
180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
195 200 205

Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr
210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu
225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
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Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly
260 265 270

Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
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48

100H94~2.TXT																	
tac	acc	ccc	gcc	acc	ccc	gcc	gcc	ccg	gcc	gga	gcg	gag	cca	gca	ggt		96
Tyr	Thr	Pro	Ala	Thr	Pro	Ala	Ala	Pro	Ala	Gly	Ala	Glu	Pro	Ala	Gly		
			20					25					30				
aag	gcg	acg	acc	gag	gag	cag	aag	ctg	atc	gag	aag	aaa	aac	gcc	ggc		144
Lys	Ala	Thr	Thr	Glu	Glu	Gln	Lys	Leu	Ile	Glu	Lys	Lys	Asn	Ala	Gly		
		35					40					45					
ttc	aag	gcg	gcc	ttg	gcc	gct	gcc	gcc	ggc	gtc	ccg	cca	gcg	gac	aag		192
Phe	Lys	Ala	Ala	Leu	Ala	Ala	Ala	Ala	Gly	Val	Pro	Pro	Ala	Asp	Lys		
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tac	agg	acg	ttc	gtc	gca	acc	ttc	ggc	gcg	gcc	tcc	aac	aag	gcc	ttc		240
Tyr	Arg	Thr	Phe	Val	Ala	Thr	Phe	Gly	Ala	Ala	Ser	Asn	Lys	Ala	Phe		
	65				70				75						80		
gcg	gag	ggc	ctc	tcg	ggc	gag	ccc	aag	ggc	gcc	gcc	gaa	tcc	agc	tcc		288
Ala	Glu	Gly	Leu	Ser	Gly	Glu	Pro	Lys	Gly	Ala	Ala	Glu	Ser	Ser	Ser		
				85					90					95			
aag	gcc	gcg	ctc	acc	tcc	aag	ctc	gac	gcc	gcc	tac	aag	ctc	gcc	tac		336
Lys	Ala	Ala	Leu	Thr	Ser	Lys	Leu	Asp	Ala	Ala	Tyr	Lys	Leu	Ala	Tyr		
			100					105					110				
aag	aca	gcc	gag	ggc	gcg	acg	cct	gag	gcc	aag	tac	gac	gcc	tac	gtc		384
Lys	Thr	Ala	Glu	Gly	Ala	Thr	Pro	Glu	Ala	Lys	Tyr	Asp	Ala	Tyr	Val		
		115					120					125					
gcc	acc	gta	agc	gag	gcg	ctc	agc	atc	atc	gcc	ggc	acc	ctc	gag	gtc		432
Ala	Thr	Val	Ser	Glu	Ala	Leu	Ser	Ile	Ile	Ala	Gly	Thr	Leu	Glu	Val		
	130					135					140						
cac	gcc	gtc	aag	ccc	gcg	gcc	gag	gag	gtc	aag	gtc	atc	ccc	gcc	ggc		480
His	Ala	Val	Lys	Pro	Ala	Ala	Glu	Glu	Val	Lys	Val	Ile	Pro	Ala	Gly		
	145				150					155					160		
gag	ctg	cag	gtc	atc	gag	aag	gtc	gac	gcc	gcc	ttc	aag	gtc	gct	gcc		528
Glu	Leu	Gln	Val	Ile	Glu	Lys	Val	Asp	Ala	Ala	Phe	Lys	Val	Ala	Ala		
				165					170					175			
acc	gcc	gcc	aac	gcc	gcc	ccc	gcc	aac	gac	aag	att	acc	gtc	ttc	gag		576
Thr	Ala	Ala	Asn	Ala	Ala	Pro	Ala	Asn	Asp	Lys	Ile	Thr	Val	Phe	Glu		
			180					185					190				
gcc	gcc	ttc	aac	gac	gcc	atc	aag	gcg	agc	acg	ggc	ggc	gcc	tac	gag		624
Ala	Ala	Phe	Asn	Asp	Ala	Ile	Lys	Ala	Ser	Thr	Gly	Gly	Ala	Tyr	Glu		
		195					200					205					
agc	tac	aag	ttc	atc	ccc	gcc	ctg	gag	gcc	gcc	gtc	aag	aaa	gcc	tac		672
Ser	Tyr	Lys	Phe	Ile	Pro	Ala	Leu	Glu	Ala	Ala	Val	Lys	Lys	Ala	Tyr		
	210				215						220						
gcc	gcc	acc	gtc	gcc	acc	gcg	ccg	gag	gtc	aag	tac	act	gtc	ttt	gag		720
Ala	Ala	Thr	Val	Ala	Thr	Ala	Pro	Glu	Val	Lys	Tyr	Thr	Val	Phe	Glu		
	225				230					235					240		
acc	gca	gaa	aaa	aag	gcc	atc	acc	gcc	atg	tcc	gaa	gca	aaa	aag	gct		768
Thr	Ala	Glu	Lys	Lys	Ala	Ile	Thr	Ala	Met	Ser	Glu	Ala	Lys	Lys	Ala		
				245					250					255			
gcc	aag	ccc	gcc	gcc	gct	gcc	acc	gcc	acc	gca	acc	gcc	gcc	gtt	ggc		816
Ala	Lys	Pro	Ala	Ala	Ala	Ala	Thr	Ala	Thr	Ala	Thr	Ala	Ala	Val	Gly		
			260					265					270				
gcg	gcc	acc	ggc	gcc	gcc	acc	gcc	gct	act	ggc	ggc	tac	aaa	gtc			861
Ala	Ala	Thr	Gly	Ala	Ala	Thr	Ala	Ala	Thr	Gly	Gly	Tyr	Lys	Val			
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100H94~2.TXT

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Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
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Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
 35 40 45

Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
 50 55 60

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
 65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
 85 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
 100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
 115 120 125

Ala Thr Val Ser Glu Ala Leu Ser Ile Ile Ala Gly Thr Leu Glu Val
 130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
 145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
 165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu
 180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
 195 200 205

Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr
 210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu
 225 230 235 240

100H94~2.TXT

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
245 250 255

Ala Lys Pro Ala Ala Ala Thr Ala Thr Ala Thr Ala Val Gly
260 265 270

Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
275 280 285

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tac acc ccc gcc acc ccc gcc gcc ccg gcc gga gcg gag cca gca ggt 96
Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
20 25 30

aag gcg acg acc gag gag cag aag ctg atc gag aag aaa aac gcc ggc 144
Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
35 40 45

ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag 192
Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
50 55 60

tac agg acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc 240
Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
65 70 75 80

gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc 288
Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
Page 72

100H94~2.TXT																
85				90				95								
aag	gcc	gcg	ctc	acc	tcc	aag	ctc	gac	gcc	gcc	tac	aag	ctc	gcc	tac	336
Lys	Ala	Ala	Leu	Thr	Ser	Lys	Leu	Asp	Ala	Ala	Tyr	Lys	Leu	Ala	Tyr	
			100					105					110			
aag	aca	gcc	gag	ggc	gcg	acg	cct	gag	gcc	aag	tac	gac	gcc	tac	gtc	384
Lys	Thr	Ala	Glu	Gly	Ala	Thr	Pro	Glu	Ala	Lys	Tyr	Asp	Ala	Tyr	Val	
		115					120					125				
gcc	acc	gta	agc	gag	gcg	ctc	cgc	aaa	atc	gcc	ggc	acc	ctc	gag	gtc	432
Ala	Thr	Val	Ser	Glu	Ala	Leu	Arg	Lys	Ile	Ala	Gly	Thr	Leu	Glu	Val	
		130				135					140					
cac	gcc	gtc	aag	ccc	gcg	gcc	gag	gag	gtc	aag	gtc	atc	ccc	gcc	ggc	480
His	Ala	Val	Lys	Pro	Ala	Ala	Glu	Glu	Val	Lys	Val	Ile	Pro	Ala	Gly	
					150					155					160	
gag	ctg	cag	gtc	atc	gag	aag	gtc	gac	gcc	gcc	ttc	aag	gtc	gct	gcc	528
Glu	Leu	Gln	Val	Ile	Glu	Lys	Val	Asp	Ala	Ala	Phe	Lys	Val	Ala	Ala	
				165					170					175		
acc	gcc	gcc	aac	gcc	gcc	ccc	gcc	aac	gac	aag	att	acc	gtc	ttc	gag	576
Thr	Ala	Ala	Asn	Ala	Ala	Pro	Ala	Asn	Asp	Lys	Ile	Thr	Val	Phe	Glu	
			180					185					190			
gcc	gcc	ttc	aac	gac	gcc	atc	aag	gcg	agc	acg	ggc	ggc	gcc	tac	gag	624
Ala	Ala	Phe	Asn	Asp	Ala	Ile	Lys	Ala	Ser	Thr	Gly	Gly	Ala	Tyr	Glu	
		195					200					205				
agc	tac	aag	ttc	atc	ccc	gcc	ctg	gag	gcc	gcc	gtc	aag	aaa	gcc	tac	672
Ser	Tyr	Lys	Phe	Ile	Pro	Ala	Leu	Glu	Ala	Ala	Val	Lys	Lys	Ala	Tyr	
		210				215					220					
gcc	gcc	acc	gtc	gcc	acc	gcg	ccg	gag	gtc	aag	tac	act	gtc	ttt	gag	720
Ala	Ala	Thr	Val	Ala	Thr	Ala	Pro	Glu	Val	Lys	Tyr	Thr	Val	Phe	Glu	
					230					235					240	
acc	gca	gaa	aaa	aag	gcc	atc	acc	gcc	atg	tcc	gaa	gca	aaa	aag	gct	768
Thr	Ala	Glu	Lys	Lys	Ala	Ile	Thr	Ala	Met	Ser	Glu	Ala	Lys	Lys	Ala	
				245					250					255		
gcc	aag	ccc	gcc	gcc	gct	gcc	acc	gcc	acc	gca	acc	gcc	gcc	gtt	ggc	816
Ala	Lys	Pro	Ala	Ala	Ala	Ala	Thr	Ala	Thr	Ala	Thr	Ala	Ala	Val	Gly	
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gcg	gcc	acc	ggc	gcc	gcc	acc	gcc	gct	act	ggg	ggc	tac	aaa	gtc		861
Ala	Ala	Thr	Gly	Ala	Ala	Thr	Ala	Ala	Thr	Gly	Gly	Tyr	Lys	Val		
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Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly

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10

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Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly

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25

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Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly

35

40

45

100H94~2.TXT

Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
 50 55 60
 Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
 65 70 75 80
 Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
 85 90 95
 Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
 100 105 110
 Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
 115 120 125
 Ala Thr Val Ser Glu Ala Leu Arg Lys Ile Ala Gly Thr Leu Glu Val
 130 135 140
 His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
 145 150 155 160
 Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
 165 170 175
 Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu
 180 185 190
 Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
 195 200 205
 Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr
 210 215 220
 Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu
 225 230 235 240
 Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
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 Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
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Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly	
20 25 30	
aag gcg acg acc gag gag cag aag ctg atc gag aag aaa aac gcc ggc	144
Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly	
35 40 45	
ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag	192
Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Pro Ala Asp Lys	
50 55 60	
tac agg acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc	240
Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe	
65 70 75 80	
gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc	288
Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser	
85 90 95	
aag gcc gcg ctc acc tcc aag ctc gac gcc gcc tac aag ctc gcc tac	336
Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr	
100 105 110	
aag aca gcc gag ggc gcg acg cct gag gcc aag tac gac gcc tac gtc	384
Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val	
115 120 125	
gcc acc gta agc agc gcg ctc cgc atc atc gcc ggc acc ctc gag gtc	432
Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val	
130 135 140	
cac gcc gtc aag ccc gcg gcc gag gag gtc aag gtc atc ccc gcc ggc	480
His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly	
145 150 155 160	

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acc	gcc	gcc	aac	gcc	gcc	ccc	gcc	aac	cat	aag	ttc	acc	gtc	ttc	gag	576
Thr	Ala	Ala	Asn	Ala	Ala	Pro	Ala	Asn	His	Lys	Phe	Thr	Val	Phe	Glu	
			180					185					190			
gcc	gcc	ttc	aac	gac	gcc	atc	aag	gcg	agc	acg	ggc	ggc	gcc	tac	gag	624
Ala	Ala	Phe	Asn	Asp	Ala	Ile	Lys	Ala	Ser	Thr	Gly	Gly	Ala	Tyr	Glu	
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agc	tac	aag	ttc	atc	ccc	gcc	ctg	gag	gcc	gcc	gtc	aag	aaa	gcc	tac	672
Ser	Tyr	Lys	Phe	Ile	Pro	Ala	Leu	Glu	Ala	Ala	Val	Lys	Lys	Ala	Tyr	
	210					215					220					
gcc	gcc	acc	gtc	gcc	acc	gcg	ccg	gag	gtc	aag	tac	act	gtc	ttt	gag	720
Ala	Ala	Thr	Val	Ala	Thr	Ala	Pro	Glu	Val	Lys	Tyr	Thr	Val	Phe	Glu	
	225				230					235					240	
acc	gca	gaa	aaa	aag	gcc	atc	acc	gcc	atg	tcc	gaa	gca	aaa	aag	gct	768
Thr	Ala	Glu	Lys	Lys	Ala	Ile	Thr	Ala	Met	Ser	Glu	Ala	Lys	Lys	Ala	
				245					250					255		
gcc	aag	ccc	gcc	gcc	gct	gcc	acc	gcc	acc	gca	acc	gcc	gcc	gtt	ggc	816
Ala	Lys	Pro	Ala	Ala	Ala	Ala	Thr	Ala	Thr	Ala	Thr	Ala	Ala	Val	Gly	
			260					265					270			
gcg	gcc	acc	ggc	gcc	gcc	acc	gcc	gct	act	ggg	ggc	tac	aaa	gtc		861
Ala	Ala	Thr	Gly	Ala	Ala	Thr	Ala	Ala	Thr	Gly	Gly	Tyr	Lys	Val		
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Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
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Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
 35 40 45

Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
 50 55 60

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
 65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
 85 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
 100 105 110

100H94~2.TXT

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
115 120 125

Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val
130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn His Lys Phe Thr Val Phe Glu
180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
195 200 205

Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr
210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu
225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
245 250 255

Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Val Gly
260 265 270

Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
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tac Tyr	acc Thr	ccc Pro	gcc Ala 20	acc Thr	ccc Pro	gcc Ala	gcc Ala	ccg Pro 25	gcc Ala	gga Gly	gcg Ala	gag Glu	cca Pro 30	gca Ala	ggt Gly	96	
aag Lys	gcg Ala	acg Thr 35	acc Thr	gag Glu	gag Glu	cag Gln	aag Lys 40	ctg Leu	atc Ile	gag Glu	aag Lys	aaa Lys 45	aac Asn	gcc Ala	ggc Gly	144	
ttc Phe	aag Lys 50	gcg Ala	gcc Ala	ttg Leu	gcc Ala	gct Ala 55	gcc Ala	gcc Ala	ggc Gly	gtc Val	ccg Pro 60	cca Pro	gcg Ala	gac Asp	aag Lys	192	
tac Tyr 65	agg Arg	acg Thr	ttc Phe	gtc Val	gca Ala 70	acc Thr	ttc Phe	ggc Gly	gcg Ala	gcc Ala 75	tcc Ser	aac Asn	aag Lys	gcc Ala	ttc Phe 80	240	
gcg Ala	gag Glu	ggc Gly	ctc Leu	tcg Ser 85	ggc Gly	gag Glu	ccc Pro	aag Lys	ggc Gly 90	gcc Ala	gcc Ala	gaa Glu	tcc Ser	agc Ser 95	tcc Ser	288	
aag Lys	gcc Ala	gcg Ala	ctc Leu 100	acc Thr	tcc Ser	aag Lys	ctc Leu	gac Asp 105	gcc Ala	gcc Ala	tac Tyr	aag Lys	ctc Leu 110	gcc Ala	tac Tyr	336	
aag Lys	aca Thr	gcc Ala 115	gag Glu	ggc Gly	gcg Ala	acg Thr	cct Pro 120	gag Glu	gcc Ala	aag Lys	tac Tyr	gac Asp 125	gcc Ala	tac Tyr	gtc Val	384	
gcc Ala	acc Thr 130	gta Val	agc Ser	agc Ser	gcg Ala	ctc Leu 135	cgc Arg	atc Ile	atc Ile	gcc Ala	ggc Gly 140	acc Thr	ctc Leu	gag Glu	gtc Val	432	
cac His 145	gcc Ala	gtc Val	aag Lys	ccc Pro	gcg Ala 150	gcc Ala	gag Glu	gag Glu	gtc Val	aag Lys 155	gtc Val	atc Ile	ccc Pro	gcc Ala	ggc Gly 160	480	
gag Glu	ctg Leu	cag Gln	gtc Val	atc Ile 165	gag Glu	aag Lys	gtc Val	gac Asp	gcc Ala 170	gcc Ala	ttc Phe	aag Lys	gtc Val	gct Ala 175	gcc Ala	528	
acc Thr	gcc Ala	gcc Ala	aac Asn 180	gcc Ala	gcc Ala	ccc Pro	gcc Ala	aac Asn 185	gac Asp	aag Lys	ttc Phe	acc Thr	gtc Val 190	ttc Phe	gag Glu	576	
gcc Ala	gcc Ala	ttc Phe 195	aac Asn	gac Asp	gcc Ala	atc Ile	aag Lys 200	gcg Ala	agc Ser	acg Thr	ggc Gly	ggc Gly 205	gcc Ala	tac Tyr	gag Glu	624	
agc Ser	tac Tyr 210	aag Lys	ttc Phe	atc Ile	ccc Pro	gcc Ala 215	ctg Leu	gag Glu	gcc Ala	gcc Ala	gtc Val 220	aag Lys	aaa Lys	gcc Ala	tac Tyr	672	
gcc Ala	gcc Ala	acc Thr	gtc Val	gcc Ala	acc Thr	gcg Ala	ggc Gly	gag Glu	gtc Val	aag Lys	tac Tyr	act Thr	gtc Val	ttt Phe	gag Glu	720	

100H94~2.TXT

225		230		235		240	
acc gca gaa aaa aag gcc atc acc gcc atg tcc gaa gca aaa aag gct							768
Thr Ala Glu Lys Lys 245		Ala Ile Thr Ala Met 250		Ser Glu Ala Lys Lys 255		Ala	
gcc aag ccc gcc gcc gct gcc acc gcc acc gca acc gcc gcc gtt ggc							816
Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly							
		260		265		270	
gcg gcc acc ggc gcc gcc acc gcc gct act ggt ggc tac aaa gtc							861
Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val							
		275		280		285	

<210> 70
 <211> 287
 <212> PRT
 <213> Phleum pratense

<400> 70

Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
 1 5 10 15

Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
 20 25 30

Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
 35 40 45

Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
 50 55 60

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
 65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
 85 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
 100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
 115 120 125

Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val
 130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
 145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
 165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu
 180 185 190

100H94~2.TXT

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
 195 200 205

Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr
 210 215 220

Ala Ala Thr Val Ala Thr Ala Gly Glu Val Lys Tyr Thr Val Phe Glu
 225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
 245 250 255

Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Val Gly
 260 265 270

Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
 275 280 285

<210> 71
 <211> 861
 <212> DNA
 <213> Phleum pratense

<220>
 <221> CDS
 <222> (1)..(861)

<220>
 <221> mutation
 <222> (133)..(135)

<220>
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 <222> (397)..(399)

<220>
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<220>
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 <222> (640)..(642)

<220>
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 <222> (726)..(728)

<220>
 <221> mutation
 <222> (760)..(762)

<400> 71
 gcc gat ctc ggt tac ggc ccc gcc acc cca gct gcc ccg gcc gcc ggc 48
 Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
 1 5 10 15

tac acc ccc gcc acc ccc gcc gcc ccg gcc gga gcg gag cca gca ggt 96
 Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
 20 25 30

100H94~2.TXT

aag gcg acg acc gag gag cag aag ctg atc gag aag aaa aac gcc ggc	144
Lys Ala Thr 35 Glu Glu Gln Lys 40 Leu Ile Glu Lys 45 Lys Asn Ala Gly	
ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag	192
Phe Lys 50 Ala Ala Leu Ala 55 Ala Ala Gly Val 60 Pro Ala Asp Lys	
tac agg acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc	240
Tyr Arg Thr Phe Val 70 Ala Thr Phe Gly Ala 75 Ala Ser Asn Lys Ala Phe 80	
gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc	288
Ala Glu Gly Leu Ser 85 Gly Glu Pro Lys 90 Gly Ala Ala Glu Ser Ser 95 Ser Ser	
aag gcc gcg ctc acc tcc aag ctc gac gcc gcc tac aag ctc gcc tac	336
Lys Ala Ala Leu 100 Thr Ser Lys Leu 105 Asp Ala Ala Tyr Lys Leu 110 Ala Tyr	
aag aca gcc gag ggc gcg acg cct gag gcc aag tac gac gcc tac gtc	384
Lys Thr 115 Ala Glu Gly Ala Thr Pro 120 Glu Ala Lys Tyr Asp 125 Ala Tyr Val	
gcc acc gta agc agc gcg ctc cgc atc atc gcc ggc acc ctc gag gtc	432
Ala Thr 130 Val Ser Ser Ala Leu 135 Arg Ile Ile Ala Gly Thr Leu Glu Val 140	
cac gcc gtc aag ccc gcg gcc gag gag gtc aag gtc atc ccc gcc ggc	480
His Ala Val Lys Pro 150 Ala Ala Glu Glu Val 155 Lys Val Ile Pro Ala Gly 160	
gag ctg cag gtc atc gag aag gtc gac gcc gcc ttc aag gtc gct gcc	528
Glu Leu Gln Val Ile 165 Glu Lys Val Asp 170 Ala Ala Phe Lys Val Ala 175 Ala Ala	
acc gcc gcc aac gcc gcc ccc gcc aac gac aag att acc gtc ttc gag	576
Thr Ala Ala Asn 180 Ala Ala Pro Ala Asn 185 Asp Lys Ile Thr Val 190 Phe Glu	
gcc gcc ttc aac gac gcc atc aag gcg agc acg ggc ggc gcc tac gag	624
Ala Ala Phe 195 Asn Asp Ala Ile Lys 200 Ala Ser Thr Gly Gly 205 Ala Tyr Glu	
agc tac aag ttc atc ggc gcc ctg gag gcc gcc gtc aag cag gcc tac	672
Ser Tyr Lys Phe Ile Gly Ala Leu Glu Ala Ala Val 220 Lys Gln Ala Tyr 210	
gcc gcc acc gtc gcc acc gcg ccg gag gtc aag tac act gtc ttt gag	720
Ala Ala Thr Val Ala Thr 230 Ala Pro Glu Val Lys Tyr Thr Val Phe Glu 240	
acc gca gaa aaa aag gcc atc acc gcc atg tcc gaa gca aaa aag gct	768
Thr Ala Glu Lys Lys 245 Ala Ile Thr Ala Met 250 Ser Glu Ala Lys Lys 255 Ala Ala	
gcc aag ccc gcc gcc gct gcc acc gcc acc gca acc gcc gcc gtt ggc	816
Ala Lys Pro Ala Ala Ala Thr 265 Ala Thr Ala Thr Ala Ala Val Gly 270	
gcg gcc acc ggc gcc gcc acc gcc gct act ggt ggc tac aaa gtc	861
Ala Ala Thr Gly Ala Ala Thr 280 Ala Thr Gly Gly 285 Tyr Lys Val	

<210> 72
 <211> 287
 <212> PRT

<213> Phleum pratense

<400> 72

Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
 1 5 10 15

Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
 20 25 30

Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
 35 40 45

Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
 50 55 60

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
 65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
 85 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
 100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
 115 120 125

Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val
 130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
 145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
 165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu
 180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
 195 200 205

Ser Tyr Lys Phe Ile Gly Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr
 210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu
 225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
 245 250 255

100H94~2.TXT

Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly
 260 265 270

Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
 275 280 285

<210> 73
 <211> 861
 <212> DNA
 <213> Phleum pratense

<220>
 <221> CDS
 <222> (1)..(861)

<220>
 <221> mutation
 <222> (133)..(135)

<220>
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<220>
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 <222> (562)..(564)

<220>
 <221> mutation
 <222> (631)..(633)

<220>
 <221> mutation
 <222> (730)..(732)

<220>
 <221> mutation
 <222> (760)..(762)

<400> 73	
gcc gat ctc ggt tac ggc ccc gcc acc cca gct gcc ccg gcc gcc ggc	48
Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly	
1 5 10 15	
tac acc ccc gcc acc ccc gcc gcc ccg gcc gga gcg gag cca gca ggt	96
Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly	
20 25 30	
aag gcg acg acc gag gag cag aag ctg atc gag aag aaa aac gcc ggc	144
Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly	
35 40 45	
ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag	192
Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Pro Ala Asp Lys	
50 55 60	
tac agg acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc	240
Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe	
65 70 75 80	
gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc	288
Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser	
85 90 95	
aag gcc gcg ctc acc tcc aag ctc gac gcc gcc tac aag ctc gcc tac	336
Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr	

100H94~2.TXT

100	105	110	
aag aca gcc gag ggc gcg acg cct gag gcc aag tac gac gcc tac gtc Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val	115 120	125	384
gcc acc gta agc agc gcg ctc cgc atc atc gcc ggc acc ctc gag gtc Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val	130 135	140	432
cac gcc gtc aag ccc gcg gcc gag gag gtc aag gtc atc ccc gcc ggc His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly	145 150	155 160	480
gag ctg cag gtc atc gag aag gtc gac gcc gcc ttc aag gtc gct gcc Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala	165	170 175	528
acc gcc gcc aac gcc gcc ccc gcc aac gac aag att acc gtc ttc gag Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu	180	185 190	576
gcc gcc ttc aac gac gcc atc aag gcg agc acg ggc ggc gcc tac gag Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Ala Tyr Glu	195 200	205	624
agc tac aac ttc atc ccc gcc ctg gag gcc gcc gtc aag cag gcc tac Ser Tyr Asn Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr	210 215	220	672
gcc gcc acc gtc gcc acc gcg ccg gag gtc aag tac act gtc ttt gag Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu	225 230	235	720
acc gca gaa aaa aag gcc atc acc gcc atg tcc gaa gca aaa aag gct Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala	245	250 255	768
gcc aag ccc gcc gcc gct gcc acc gcc acc gca acc gcc gcc gtt ggc Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly	260	265 270	816
gcg gcc acc ggc gcc gcc acc gcc gct act ggt ggc tac aaa gtc Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val	275 280	285	861

<210> 74
 <211> 287
 <212> PRT
 <213> Phleum pratense

<400> 74

Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
 1 5 10 15

Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
 20 25 30

Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
 35 40 45

Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
 50 55 60

100H94~2.TXT

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
85 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
115 120 125

Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val
130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu
180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
195 200 205

Ser Tyr Asn Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr
210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu
225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
245 250 255

Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Val Gly
260 265 270

Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
275 280 285

<210> 75
<211> 861
<212> DNA
<213> Phleum pratense

<220>
<221> CDS
<222> (1)..(861)

<220>

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<221> mutation
<222> (196)..(198)
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<220>
<221> mutation
<222> (406)..(408)
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<220>
<221> mutation
<222> (562)..(564)
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<220>
<221> mutation
<222> (664)..(666)
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<220>
<221> mutation
<222> (730)..(732)
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<220>
<221> mutation
<222> (760)..(762)
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<400> gcc Ala 1	gat Asp 75	ctc Leu	ggt Gly	tac Tyr 5	ggc Gly	ccc Pro	gcc Ala	acc Thr	cca Pro 10	gct Ala	gcc Ala	ccg Pro	gcc Ala	gcc Ala 15	ggc Gly	48
tac Tyr	acc Thr	ccc Pro	gcc Ala 20	acc Thr	ccc Pro	gcc Ala	gcc Ala	ccg Pro 25	gcc Ala	gga Gly	gcg Ala	gag Glu	cca Pro 30	gca Ala	ggt Gly	96
aag Lys	gcg Ala	acg Thr 35	acc Thr	gag Glu	gag Glu	cag Gln	aag Lys 40	ctg Leu	atc Ile	gag Glu	aag Lys	atc Ile 45	aac Asn	gcc Ala	ggc Gly	144
ttc Phe	aag Lys 50	gcg Ala	gcc Ala	ttg Leu	gcc Ala	gct Ala 55	gcc Ala	gcc Ala	ggc Gly	gtc Val	ccg Pro 60	cca Pro	gcg Ala	gac Asp	aag Lys	192
tac Tyr 65	aac Asn	acg Thr	ttc Phe	gtc Val	gca Ala 70	acc Thr	ttc Phe	ggc Gly	gcg Ala	gcc Ala 75	tcc Ser	aac Asn	aag Lys	gcc Ala	ttc Phe 80	240
gcg Ala	gag Glu	ggc Gly	ctc Leu	tcg Ser 85	ggc Gly	gag Glu	ccc Pro	aag Lys	ggc Gly 90	gcc Ala	gcc Ala	gaa Glu	tcc Ser	agc Ser 95	tcc Ser	288
aag Lys	gcc Ala	gcg Ala	ctc Leu 100	acc Thr	tcc Ser	aag Lys	ctc Leu	gac Asp 105	gcc Ala	gcc Ala	tac Tyr	aag Lys	ctc Leu 110	gcc Ala	tac Tyr	336
aag Lys	aca Thr	gcc Ala 115	gag Glu	ggc Gly	gcg Ala	acg Thr	cct Pro 120	gag Glu	gcc Ala	aag Lys	tac Tyr	gac Asp 125	gcc Ala	tac Tyr	gtc Val	384
gcc Ala	acc Thr 130	gta Val	agc Ser	gag Glu	gcg Ala	ctc Leu 135	agc Ser	atc Ile	atc Ile	gcc Ala	ggc Gly 140	acc Thr	ctc Leu	gag Glu	gtc Val	432
cac His 145	gcc Ala	gtc Val	aag Lys	ccc Pro	gcg Ala 150	gcc Ala	gag Glu	gag Glu	gtc Val	aag Lys 155	gtc Val	atc Ile	ccc Pro	gcc Ala	ggc Gly 160	480
gag Glu	ctg Leu	cag Gln	gtc Val	atc Ile 165	gag Glu	aag Lys	gtc Val	gac Asp	gcc Ala 170	gcc Ala	ttc Phe	aag Lys	gtc Val	gct Ala 175	gcc Ala	528

100H94~2.TXT

acc gcc gcc aac gcc gcc ccc gcc aac gac aag att acc gtc ttc gag	576
Thr Ala Ala Asn 180 Ala Ala Pro Ala Asn 185 Asp Lys Ile Thr Val 190 Phe Glu	
gcc gcc ttc aac gac gcc atc aag gcg agc acg ggc gcc ggc tac gag	624
Ala Ala Phe 195 Asn Asp Ala Ile Lys 200 Ala Ser Thr Gly 205 Ala Tyr Glu	
agc tac aag ttc atc ccc gcc ctg gag gcc gcc gtc aag aaa gcc tac	672
Ser Tyr 210 Lys Phe Ile Pro Ala 215 Leu Glu Ala Ala Val 220 Lys Lys Ala Tyr	
gcc gcc acc gtc gcc acc gcg ccg gag gtc aag tac act gtc ttt gag	720
Ala Ala Thr Val Ala Thr 230 Ala Pro Glu Val Lys 235 Tyr Thr Val Phe Glu 240	
acc gca gaa aaa aag gcc atc acc gcc atg tcc gaa gca aaa aag gct	768
Thr Ala Glu Lys Lys 245 Ala Ile Thr Ala Met 250 Ser Glu Ala Lys Lys 255 Ala	
gcc aag ccc gcc gcc gct gcc acc gcc acc gca acc gcc gcc gtt gcc	816
Ala Lys Pro Ala Ala Ala Ala Thr 260 Ala Thr Ala Thr Ala Ala Val Gly 270	
gcg gcc acc ggc gcc gcc acc gcc gct act ggt ggc tac aaa gtc	861
Ala Ala Thr 275 Gly Ala Ala Thr 280 Ala Ala Thr Gly Gly Tyr 285 Lys Val	

<210> 76
 <211> 287
 <212> PRT
 <213> Phleum pratense
 <400> 76

Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
 1 5 10 15
 Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
 20 25 30
 Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly
 35 40 45
 Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
 50 55 60
 Tyr Asn Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
 65 70 75 80
 Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
 85 90 95
 Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
 100 105 110
 Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
 115 120 125

100H94~2.TXT

Ala Thr Val Ser Glu Ala Leu Ser Ile Ile Ala Gly Thr Leu Glu Val
130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu
180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
195 200 205

Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr
210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu
225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
245 250 255

Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly
260 265 270

Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
275 280 285

<210> 77
<211> 861
<212> DNA
<213> Phleum pratense

<220>
<221> CDS
<222> (1)..(861)

<220>
<221> mutation
<222> (196)..(198)

<220>
<221> mutation
<222> (409)..(411)

<220>
<221> mutation
<222> (562)..(564)

<220>
<221> mutation
<222> (664)..(666)

<220>
<221> mutation
<222> (730)..(732)

100H94~2.TXT

<220>
 <221> mutation
 <222> (760)..(762)

<400> 77

gcc gat ctc ggt tac ggc ccc gcc acc cca gct gcc ccg gcc gcc ggc	48
Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly	
1 5 10 15	
tac acc ccc gcc acc ccc gcc gcc ccg gcc gga gcg gag cca gca ggt	96
Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly	
20 25 30	
aag gcg acg acc gag gag cag aag ctg atc gag aag atc aac gcc ggc	144
Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly	
35 40 45	
ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag	192
Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Ala Asp Lys	
50 55 60	
tac aac acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc	240
Tyr Asn Thr Phe Val Ala Thr Phe Gly Ala Val Ser Asn Lys Ala Phe	
65 70 75 80	
gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc	288
Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser	
85 90 95	
aag gcc gcg ctc acc tcc aag ctc gac gcc gcc tac aag ctc gcc tac	336
Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr	
100 105 110	
aag aca gcc gag ggc gcg acg cct gag gcc aag tac gac gcc tac gtc	384
Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val	
115 120 125	
gcc acc gta agc gag gcg ctc cgc aaa atc gcc ggc acc ctc gag gtc	432
Ala Thr Val Ser Glu Ala Leu Arg Lys Ile Ala Gly Thr Leu Glu Val	
130 135 140	
cac gcc gtc aag ccc gcg gcc gag gag gtc aag gtc atc ccc gcc ggc	480
His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly	
145 150 155 160	
gag ctg cag gtc atc gag aag gtc gac gcc gcc ttc aag gtc gct gcc	528
Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala	
165 170 175	
acc gcc gcc aac gcc gcc ccc gcc aac gac aag att acc gtc ttc gag	576
Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu	
180 185 190	
gcc gcc ttc aac gac gcc atc aag gcg agc acg ggc ggc gcc tac gag	624
Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu	
195 200 205	
agc tac aag ttc atc ccc gcc ctg gag gcc gcc gtc aag aaa gcc tac	672
Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr	
210 215 220	
gcc gcc acc gtc gcc acc gcg ccg gag gtc aag tac act gtc ttt gag	720
Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu	
225 230 235 240	
acc gca gaa aaa aag gcc atc acc gcc atg tcc gaa gca aaa aag gct	768
Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala	

100H94~2.TXT

245

250

255

gcc aag ccc gcc gcc gct gcc acc gcc acc gca acc gcc gcc gtt gcc 816
Ala Lys Pro Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly
260 265 270

gcg gcc acc ggc gcc gcc acc gcc gct act ggt ggc tac aaa gtc 861
Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
275 280 285

<210> 78
<211> 287
<212> PRT
<213> Phleum pratense

<400> 78

Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
1 5 10 15

Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
20 25 30

Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly
35 40 45

Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
50 55 60

Tyr Asn Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
85 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
115 120 125

Ala Thr Val Ser Glu Ala Leu Arg Lys Ile Ala Gly Thr Leu Glu Val
130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Ile Thr Val Phe Glu
180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
195 200 205

100H94~2.TXT

Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Lys Ala Tyr
 210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu
 225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
 245 250 255

Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly
 260 265 270

Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
 275 280 285

<210> 79
 <211> 861
 <212> DNA
 <213> Phleum pratense

<220>
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<400> 79
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 Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
 1 5 10 15

tac acc ccc gcc acc ccc gcc gcc ccg gcc gga gcg gag cca gca ggt 96
 Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
 20 25 30

aag gcg acg acc gag gag cag aag ctg atc gag aag aaa aac gcc ggc 144
 Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
 35 40 45

100H94~2.TXT

ttc aag gcg gcc ttg gcc gct gcc gcc gcc ggc gtc ccg cca gcg gac aag Phe Lys 50 Ala Ala Leu Ala 55 Ala Ala Gly Val Pro 60 Ala Asp Lys	192
tac agg acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc Tyr 65 Arg Thr Phe Val 70 Thr Phe Gly Ala 75 Ser Asn Lys Ala Phe 80	240
gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc Ala Glu Gly Leu Ser 85 Gly Glu Pro Lys Gly 90 Ala Ala Glu Ser Ser 95	288
aag gcc gcg ctc acc tcc aag ctc gac gcc gcc tac aag ctc gcc tac Lys Ala Ala Leu 100 Thr Ser Lys Leu 105 Asp Ala Ala Tyr Lys Leu 110 Ala Tyr	336
aag aca gcc gag ggc gcg acg cct gag gcc aag tac gac gcc tac gtc Lys Thr 115 Glu Gly Ala Thr 120 Pro Glu Ala Lys Tyr 125 Asp Ala Tyr Val	384
gcc acc gta agc agc gcg ctc cgc atc atc gcc ggc acc ctc gag gtc Ala Thr 130 Val Ser Ser Ala Leu 135 Arg Ile Ile Ala Gly 140 Thr Leu Glu Val	432
cac gcc gtc aag ccc gcg gcc gag gag gtc aag gtc atc ccc gcc ggc His 145 Ala Val Lys Pro 150 Ala Ala Glu Glu Val Lys 155 Val Ile Pro Ala Gly 160	480
gag ctg cag gtc atc gag aag gtc gac gcc gcc ttc aag gtc gct gcc Glu Leu Gln Val 165 Glu Lys Val Asp 170 Ala Ala Phe Lys Val 175 Ala Ala	528
acc gcc gcc aac gcc gcc ccc gcc aac cat aag ttc acc gtc ttc gag Thr Ala Ala Asn 180 Ala Ala Pro Ala Asn 185 His Lys Phe Thr 190 Val Phe Glu	576
gcc gcc ttc aac gac gcc atc aag gcg agc acg ggc ggc gcc tac gag Ala Ala Phe 195 Asn Asp Ala Ile Lys 200 Ala Ser Thr Gly 205 Ala Tyr Glu	624
agc tac aag ttc atc ggc gcc ctg gag gcc gcc gtc aag cag gcc tac Ser Tyr 210 Lys Phe Ile Gly Ala 215 Leu Glu Ala Ala Val 220 Lys Gln Ala Tyr	672
gcc gcc acc gtc gcc acc gcg ccg gag gtc aag tac act gtc ttt gag Ala Ala Thr Val Ala 230 Ala Pro Glu Val Lys 235 Tyr Thr Val Phe Glu 240	720
acc gca gaa aaa aag gcc atc acc gcc atg tcc gaa gca aaa aag gct Thr Ala Glu Lys 245 Ala Ile Thr Ala Met 250 Ser Glu Ala Lys Lys 255 Ala	768
gcc aag ccc gcc gcc gct gcc acc gcc acc gca acc gcc gcc gtt ggc Ala Lys Pro Ala Ala Ala Thr 260 Ala Thr Ala Thr 265 Ala Ala Thr Val Gly	816
gcg gcc acc ggc gcc gcc acc gcc gct act ggt ggc tac aaa gtc Ala Ala Thr 275 Gly Ala Ala Thr 280 Ala Thr Gly Gly Tyr 285 Lys Val	861

<210> 80
 <211> 287
 <212> PRT
 <213> Phleum pratense
 <400> 80

100H94~2.TXT

Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
 1 5 10 15
 Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
 20 25 30
 Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
 35 40 45
 Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
 50 55 60
 Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
 65 70 75 80
 Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
 85 90 95
 Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
 100 105 110
 Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
 115 120 125
 Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val
 130 135 140
 His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
 145 150 155 160
 Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
 165 170 175
 Thr Ala Ala Asn Ala Ala Pro Ala Asn His Lys Phe Thr Val Phe Glu
 180 185 190
 Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
 195 200 205
 Ser Tyr Lys Phe Ile Gly Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr
 210 215 220
 Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu
 225 230 235 240
 Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
 245 250 255
 Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Val Gly
 260 265 270

100H94~2.TXT

Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
 275 280 285

<210> 81
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 <212> DNA
 <213> Phleum pratense

<220>
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<400> 81	
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Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly	
1 5 10 15	
tac acc ccc gcc acc ccc gcc gcc ccg gcc gga gcg gag cca gca ggt	96
Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly	
20 25 30	
aag gcg acg acc gag gag cag aag ctg atc gag aag aaa aac gcc gcc	144
Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly	
35 40 45	
ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag	192
Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys	
50 55 60	
tac agg acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc	240
Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe	
65 70 75 80	
gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc	288
Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser	
85 90 95	
aag gcc gcg ctc acc tcc aag ctc gac gcc gcc tac aag ctc gcc tac	336
Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr	
100 105 110	
aag aca gcc gag ggc gcg acg cct gag gcc aag tac gac gcc tac gtc	384
Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val	

100H94~2.TXT

115	120	125		
gcc acc gta agc agc gcg ctc cgc atc atc gcc ggc acc ctc gag gtc Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val	130	135	140	432
cac gcc gtc aag ccc gcg gcc gag gag gtc aag gtc atc ccc gcc ggc His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly	145	150	155	480
gag ctg cag gtc atc gag aag gtc gac gcc gcc ttc aag gtc gct gcc Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala	165	170	175	528
acc gcc gcc aac gcc gcc ccc gcc aac cat aag ttc acc gtc ttc gag Thr Ala Ala Asn Ala Ala Pro Ala Asn His Lys Phe Thr Val Phe Glu	180	185	190	576
gcc gcc ttc aac gac gcc atc aag gcg agc acg ggc ggc gcc tac gag Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu	195	200	205	624
agc tac aac ttc atc ccc gcc ctg gag gcc gcc gtc aag cag gcc tac Ser Tyr Asn Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr	210	215	220	672
gcc gcc acc gtc gcc acc gcg ccg gag gtc aag tac act gtc ttt gag Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu	225	230	235	720
acc gca gaa aaa aag gcc atc acc gcc atg tcc gaa gca aaa aag gct Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala	245	250	255	768
gcc aag ccc gcc gcc gct gcc acc gcc acc gca acc gcc gcc gtt ggc Ala Lys Pro Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly	260	265	270	816
gcg gcc acc ggc gcc gcc acc gcc gct act ggt ggc tac aaa gtc Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val	275	280	285	861

<210> 82
 <211> 287
 <212> PRT
 <213> Phleum pratense

<400> 82

Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
 1 5 10 15

Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
 20 25 30

Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
 35 40 45

Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
 50 55 60

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
 65 70 75 80

100H94~2.TXT

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
85 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
115 120 125

Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val
130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn His Lys Phe Thr Val Phe Glu
180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
195 200 205

Ser Tyr Asn Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr
210 215 220

Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu
225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
245 250 255

Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Val Gly
260 265 270

Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
275 280 285

<210> 83
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<212> DNA
<213> Phleum pratense

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<220>
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<400>	83	
gcc gat ctc ggt tac ggc ccc gcc acc cca gct gcc ccg gcc gcc ggc	48	
Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly		
1 5 10 15		
tac acc ccc gcc acc ccc gcc gcc ccg gcc gga gcg gag cca gca ggt	96	
Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly		
20 25 30		
aag gcg acg acc gag gag cag aag ctg atc gag aag aaa aac gcc ggc	144	
Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly		
35 40 45		
ttc aag gcg gcc ttg gcc gct gcc gcc ggc gtc ccg cca gcg gac aag	192	
Phe Lys Ala Ala Leu Ala Ala Ala Gly Val Pro Pro Ala Asp Lys		
50 55 60		
tac agg acg ttc gtc gca acc ttc ggc gcg gcc tcc aac aag gcc ttc	240	
Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe		
65 70 75 80		
gcg gag ggc ctc tcg ggc gag ccc aag ggc gcc gcc gaa tcc agc tcc	288	
Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser		
85 90 95		
aag gcc gcg ctc acc tcc aag ctc gac gcc gcc tac aag ctc gcc tac	336	
Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr		
100 105 110		
aag aca gcc gag ggc gcg acg cct gag gcc aag tac gac gcc tac gtc	384	
Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val		
115 120 125		
gcc acc gta agc agc gcg ctc cgc atc atc gcc ggc acc ctc gag gtc	432	
Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val		
130 135 140		
cac gcc gtc aag ccc gcg gcc gag gag gtc aag gtc atc ccc gcc ggc	480	
His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly		
145 150 155 160		
gag ctg cag gtc atc gag aag gtc gac gcc gcc ttc aag gtc gct gcc	528	
Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala		
165 170 175		
acc gcc gcc aac gcc gcc ccc gcc aac gac aag ttc acc gtc ttc gag	576	
Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu		
180 185 190		

100H94~2.TXT

gcc gcc ttc aac gac gcc atc aag gcg agc acg ggc ggc gcc tac gag Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu 195 200 205	624
agc tac aag ttc atc ggc gcc ctg gag gcc gcc gtc aag cag gcc tac Ser Tyr Lys Phe Ile Gly Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr 210 215 220	672
gcc gcc acc gtc gcc acc gcg ggc gag gtc aag tac act gtc ttt gag Ala Ala Thr Val Ala Thr Ala Gly Glu Val Lys Tyr Thr Val Phe Glu 225 230 235 240	720
acc gca gaa aaa aag gcc atc acc gcc atg tcc gaa gca aaa aag gct Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala 245 250 255	768
gcc aag ccc gcc gcc gct gcc acc gcc acc gca acc gcc gcc gtt ggc Ala Lys Pro Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly 260 265 270	816
gcg gcc acc ggc gcc gcc acc gcc gct act ggt ggc tac aaa gtc Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val 275 280 285	861

<210> 84
 <211> 287
 <212> PRT
 <213> Phleum pratense

<400> 84

Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly 1 5 10 15
Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly 20 25 30
Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly 35 40 45
Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys 50 55 60
Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe 65 70 75 80
Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser 85 90 95
Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr 100 105 110
Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val 115 120 125
Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val 130 135 140

100H94~2.TXT

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
 145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
 165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu
 180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
 195 200 205

Ser Tyr Lys Phe Ile Gly Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr
 210 215 220

Ala Ala Thr Val Ala Thr Ala Gly Glu Val Lys Tyr Thr Val Phe Glu
 225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
 245 250 255

Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Val Gly
 260 265 270

Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
 275 280 285

<210> 85
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 <212> DNA
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Page 100

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gcc Ala 1	gat Asp	ctc Leu	ggt Gly	tac Tyr 5	ggc Gly	ccc Pro	gcc Ala	acc Thr	cca Pro 10	gct Ala	gcc Ala	ccg Pro	gcc Ala	gcc Ala 15	ggc Gly	48
tac Tyr	acc Thr	ccc Pro	gcc Ala 20	acc Thr	ccc Pro	gcc Ala	gcc Ala	ccg Pro 25	gcc Ala	gga Gly	gcg Ala	gag Glu	cca Pro 30	gca Ala	ggt Gly	96
aag Lys	gcg Ala	acg Thr 35	acc Thr	gag Glu	gag Glu	cag Gln	aag Lys 40	ctg Leu	atc Ile	gag Glu	aag Lys	aaa Lys 45	aac Asn	gcc Ala	ggc Gly	144
ttc Phe	aag Lys 50	gcg Ala	gcc Ala	ttg Leu	gcc Ala	gct Ala 55	gcc Ala	gcc Ala	ggc Gly	gtc Val	ccg Pro 60	cca Pro	gcg Ala	gac Asp	aag Lys	192
tac Tyr 65	agg Arg	acg Thr	ttc Phe	gtc Val	gca Ala 70	acc Thr	ttc Phe	ggc Gly	gcg Ala	gcc Ala 75	tcc Ser	aac Asn	aag Lys	gcc Ala	ttc Phe 80	240
gcg Ala	gag Glu	ggc Gly	ctc Leu	tcg Ser 85	ggc Gly	gag Glu	ccc Pro	aag Lys	ggc Gly 90	gcc Ala	gcc Ala	gaa Glu	tcc Ser	agc Ser 95	tcc Ser	288
aag Lys	gcc Ala	gcg Ala	ctc Leu 100	acc Thr	tcc Ser	aag Lys	ctc Leu	gac Asp 105	gcc Ala	gcc Ala	tac Tyr	aag Lys	ctc Leu 110	gcc Ala	tac Tyr	336
aag Lys	aca Thr	gcc Ala 115	gag Glu	ggc Gly	gcg Ala	acg Thr	cct Pro 120	gag Glu	gcc Ala	aag Lys	tac Tyr	gac Asp 125	gcc Ala	tac Tyr	gtc Val	384
gcc Ala	acc Thr 130	gta Val	agc Ser	agc Ser	gcg Ala	ctc Leu 135	cgc Arg	atc Ile	atc Ile	gcc Ala	ggc Gly 140	acc Thr	ctc Leu	gag Glu	gtc Val	432
cac His 145	gcc Ala	gtc Val	aag Lys	ccc Pro	gcg Ala 150	gcc Ala	gag Glu	gag Glu	gtc Val	aag Lys 155	gtc Val	atc Ile	ccc Pro	gcc Ala	ggc Gly 160	480
gag Glu	ctg Leu	cag Gln	gtc Val	atc Ile 165	gag Glu	aag Lys	gtc Val	gac Asp	gcc Ala 170	gcc Ala	ttc Phe	aag Lys	gtc Val	gct Ala 175	gcc Ala	528
acc Thr	gcc Ala	gcc Ala	aac Asn 180	gcc Ala	gcc Ala	ccc Pro	gcc Ala	aac Asn 185	gac Asp	aag Lys	ttc Phe	acc Thr	gtc Val 190	ttc Phe	gag Glu	576
gcc Ala	gcc Ala	ttc Phe 195	aac Asn	gac Asp	gcc Ala	atc Ile	aag Lys 200	gcg Ala	agc Ser	acg Thr	ggc Gly	ggc Gly 205	gcc Ala	tac Tyr	gag Glu	624
agc Ser	tac Tyr 210	aac Asn	ttc Phe	atc Ile	ccc Pro	gcc Ala 215	ctg Leu	gag Glu	gcc Ala	gcc Ala	gtc Val 220	aag Lys	cag Gln	gcc Ala	tac Tyr	672
gcc Ala 225	gcc Ala	acc Thr	gtc Val	gcc Ala	acc Thr 230	gcg Ala	ggc Gly	gag Glu	gtc Val	aag Lys 235	tac Tyr	act Thr	gtc Val	ttt Phe	gag Glu 240	720
acc Thr	gca Ala	gaa Glu	aaa Lys	aag Lys 245	gcc Ala	atc Ile	acc Thr	gcc Ala	atg Met 250	tcc Ser	gaa Glu	gca Ala	aaa Lys	aag Lys 255	gct Ala	768
gcc Ala	aag Lys	ccc Pro	gcc Ala	gcc Ala	gct Ala	gcc Ala	acc Thr	gcc Ala	acc Thr	gca Ala	acc Thr	gcc Ala	gcc Ala	gtt Val	ggc Gly	816

260 100H94~2.TXT 270
 265 270
 gcg gcc acc ggc gcc gcc acc gcc gct act ggt ggc tac aaa gtc 861
 Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
 275 280 285

<210> 86
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 <213> Phleum pratense
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Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
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Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Lys Asn Ala Gly
35 40 45

Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
50 55 60

Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
65 70 75 80

Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
85 90 95

Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
100 105 110

Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
115 120 125

Ala Thr Val Ser Ser Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val
130 135 140

His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
145 150 155 160

Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
165 170 175

Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu
180 185 190

Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
195 200 205

Ser Tyr Asn Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr
210 215 220

100H94~2.TXT

Ala Ala Thr Val Ala Thr Ala Gly Glu Val Lys Tyr Thr Val Phe Glu
225 230 235 240

Thr Ala Glu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Lys Lys Ala
245 250 255

Ala Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Ala Val Gly
260 265 270

Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
275 280 285

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<212> DNA
<213> Dermatophagoides pteronyssinus

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1 5 10 15	
cga caa atg cga act gtc act ccc att cgt atg caa gga ggc tgt ggt	96
Arg Gln Met Arg Thr Val Thr Pro Ile Arg Met Gln Gly Gly Cys Gly	
20 25 30	
tca tgt tgg gct ttc tct ggt gtt gcc gca act gaa tca gct tat ttg	144
Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala Tyr Leu	
35 40 45	
gct tac cgt aat caa tca ttg gat ctt gct gaa caa gaa tta gtc gat	192
Ala Tyr Arg Asn Gln Ser Leu Asp Leu Ala Glu Gln Glu Leu Val Asp	
50 55 60	
tgt gct tcc caa cac ggt tgt cat ggt gat acc att cca cgt ggt att	240
Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Arg Gly Ile	
65 70 75 80	
gaa tac atc caa cat aat ggt gtc gtc caa gaa agc tac tat cga tac	288
Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr	
85 90 95	
gtt gca cga gaa caa tca tgc cga cga cca aat gca caa cgt ttc ggt	336
Val Ala Arg Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg Phe Gly	
100 105 110	
atc tca aac tat tgc caa att tac cca cca aat gta aac aaa att cgt	384
Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Arg	
115 120 125	
gaa gct ttg gct caa acc cac agc gct att gcc gtc att att ggc atc	432
Glu Ala Leu Ala Gln Thr His Ser Ala Ile Ala Val Ile Ile Gly Ile	
130 135 140	
aaa gat tta gac gca ttc cgt cat tat gat ggc cga aca atc att caa	480
Lys Asp Leu Asp Ala Phe Arg His Tyr Asp Gly Arg Thr Ile Ile Gln	
145 150 155 160	

100H94~2.TXT

cgc gat aat ggt tac caa cca aac tat cac gct gtc aac att gtt ggt	528
Arg Asp Asn Gly Tyr 165 Gln Pro Asn Tyr 170 His Ala Val Asn Ile Val Gly 175	
tac agt aac gca caa ggt gtc gat tat tgg atc gta cga aac agt tgg	576
Tyr Ser Asn Ala 180 Gln Gly Val Asp Tyr 185 Trp Ile Val Arg Asn 190 Ser Trp	
gat acc aat tgg ggt gat aat ggt tac ggt tat ttt gct gcc aac atc	624
Asp Thr Asn 195 Trp Gly Asp Asn Gly 200 Tyr Gly Tyr Phe Ala 205 Ala Asn Ile	
gat ttg atg atg att gaa gaa tat cca tat gtt gtc att ctc	666
Asp Leu 210 Met Met Ile Glu 215 Tyr Pro Tyr Val 220 Val Ile Leu	

<210> 88
 <211> 222
 <212> PRT
 <213> Dermatophagoides pteronyssinus
 <400> 88

Thr Asn Ala Cys Ser Ile Asn Gly Asn Ala Pro Ala Glu Ile Asp Leu
1 5 10 15
Arg Gln Met Arg Thr Val Thr Pro Ile Arg Met Gln Gly Gly Cys Gly
20 25 30
Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala Tyr Leu
35 40 45
Ala Tyr Arg Asn Gln Ser Leu Asp Leu Ala Glu Gln Glu Leu Val Asp
50 55 60
Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Arg Gly Ile
65 70 75 80
Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr Arg Tyr
85 90 95
Val Ala Arg Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg Phe Gly
100 105 110
Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys Ile Arg
115 120 125
Glu Ala Leu Ala Gln Thr His Ser Ala Ile Ala Val Ile Ile Gly Ile
130 135 140
Lys Asp Leu Asp Ala Phe Arg His Tyr Asp Gly Arg Thr Ile Ile Gln
145 150 155 160
Arg Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn Ile Val Gly
165 170 175

100H94~2.TXT

Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp
 180 185 190

Asp Thr Asn Trp Gly Asp Asn Gly Tyr Gly Tyr Phe Ala Ala Asn Ile
 195 200 205

Asp Leu Met Met Ile Glu Glu Tyr Pro Tyr Val Val Ile Leu
 210 215 220

<210> 89
 <211> 387
 <212> DNA
 <213> Dermatophagoides pteronyssinus

<220>
 <221> CDS
 <222> (1)..(387)

<400> 89	
gat caa gtc gat gtc aaa gat tgt gcc aat cat gaa atc aaa aaa gtt	48
Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val	
1 5 10 15	
ttg gta cca gga tgc cat ggt tca gaa cca tgt atc att cat cgt ggt	96
Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg Gly	
20 25 30	
aaa cca ttc caa ttg gaa gcc gtt ttc gaa gcc aac caa aac aca aaa	144
Lys Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Thr Lys	
35 40 45	
acc gct aaa att gaa atc aaa gcc tca atc gat ggt tta gaa gtt gat	192
Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp	
50 55 60	
gtt ccc ggt atc gat cca aat gca tgc cat tac atg aaa tgc cca ttg	240
Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu	
65 70 75 80	
gtt aaa gga caa caa tat gat att aaa tat aca tgg aat gtt ccg aaa	288
Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys	
85 90 95	
att gca cca aaa tct gaa aat gtt gtc gtc act gtt aaa gtt atg ggt	336
Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met Gly	
100 105 110	
gat gat ggt gtt ttg gcc tgt gct att gct act cat gct aaa atc cgc	384
Asp Asp Gly Val Leu Ala Cys Ala Ile Glu Ala Thr His Ala Lys Ile Arg	
115 120 125	
gat	387
Asp	

<210> 90
 <211> 129
 <212> PRT
 <213> Dermatophagoides pteronyssinus

<400> 90

Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val
 1 5 10 15

100H94~2.TXT

Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg Gly
20 25 30
Lys Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Thr Lys
35 40 45
Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp
50 55 60
Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu
65 70 75 80
Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
85 90 95
Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met Gly
100 105 110
Asp Asp Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg
115 120 125

Asp

<210> 91
<211> 480
<212> DNA
<213> Betula verrucosa

<400> 91
ggtgtgttta attatgagac tgagaccacc tctgttatcc cagcagctcg actgttcaag 60
gcctttatcc ttgatggcga taacctcttt ccaaagggtg caccccaagc cattagcagt 120
gttgaaaaca ttgaaggaaa tggagggcct ggaaccatta agaagatcag ctttcccgaa 180
ggcctccctt tcaagtacgt gaaggacaga gttgatgagg tggaccacac aaacttcaaa 240
tacaattaca gcgtgatcga gggcggtccc ataggcgaca cattggagaa gatctccaac 300
gagataaaga tagtggcaac ccctgatgga ggatccatct tgaagatcag caacaagtac 360
cacaccaaag gtgaccatga ggtgaaggca gagcaggtta aggcaagtaa agaaatgggc 420
gagacacttt tgagggccgt tgagagctac ctcttggcac actccgatgc ctacaactaa 480

<210> 92
<211> 159
<212> PRT
<213> Betula verrucosa

<400> 92

Gly Val Phe Asn Tyr Glu Thr Glu Thr Thr Ser Val Ile Pro Ala Ala
1 5 10 15

100H94~2.TXT

Arg Leu Phe Lys Ala Phe Ile Leu Asp Gly Asp Asn Leu Phe Pro Lys
20 25 30

Val Ala Pro Gln Ala Ile Ser Ser Val Glu Asn Ile Glu Gly Asn Gly
35 40 45

Gly Pro Gly Thr Ile Lys Lys Ile Ser Phe Pro Glu Gly Leu Pro Phe
50 55 60

Lys Tyr Val Lys Asp Arg Val Asp Glu Val Asp His Thr Asn Phe Lys
65 70 75 80

Tyr Asn Tyr Ser Val Ile Glu Gly Gly Pro Ile Gly Asp Thr Leu Glu
85 90 95

Lys Ile Ser Asn Glu Ile Lys Ile Val Ala Thr Pro Asp Gly Gly Ser
100 105 110

Ile Leu Lys Ile Ser Asn Lys Tyr His Thr Lys Gly Asp His Glu Val
115 120 125

Lys Ala Glu Gln Val Lys Ala Ser Lys Glu Met Gly Glu Thr Leu Leu
130 135 140

Arg Ala Val Glu Ser Tyr Leu Leu Ala His Ser Asp Ala Tyr Asn
145 150 155

<210> 93
<211> 387
<212> DNA
<213> Dermatophagoides pteronyssinus

<400> 93
gatcaagtcg atgtcaaaga ttgtgccaat catgaaatca aaaaagtttt ggtaccagga 60
tgccatggtt cagaaccatg tatcattcat cgtggtaaac cattccaatt ggaagcttta 120
ttcgaagcca atcaaaactc aaaaacagct aaaattgaaa tcaaagcttc aatcgatggt 180
ttagaagttg atgttcccgg tatcgatcca aatgcatgcc attatatgaa atgtccattg 240
gttaaaggac aacaatatga tattaaatat acatggaatg ttccaaaaat tgcacaaaaa 300
tctgaaaatg ttgtcgtcac tgtaaagtt ttgggtgata atggtgtttt ggcctgtgct 360
attgctactc atgctaaaat ccgcgat 387

<210> 94
<211> 129
<212> PRT
<213> Dermatophagoides pteronyssinus

<400> 94

Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val
1 5 10 15

100H94~2.TXT

Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg Gly
 20 25 30

Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Lys
 35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp
 50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu
 65 70 75 80

Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
 85 90 95

Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Leu Gly
 100 105 110

Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg
 115 120 125

Asp

<210> 95
 <211> 861
 <212> DNA
 <213> Phleum pratense

<400> 95
 gccgatctcg gttacggccc cgccacccca gctgccccgg ccgccggcta ccccccgcc 60
 accccccgccg ccccgggccgg agcggagcca gcaggtaagg cgacgaccga ggagcagaag 120
 ctgatcgaga agatcaacgc cggcttcaag gcggccttgg ccgctgccgc cggcgtccccg 180
 ccagcggaca agtacaggac gttcgtcgca accttcggcg cggcctccaa caaggccttc 240
 gcggagggcc tctcgggcca gcccaagggc gccgccgaat ccagctccaa ggccgcgctc 300
 acctccaagc tcgacgccgc ctacaagctc gcctacaaga cagccgaggg cgcgacgcct 360
 gaggccaagt acgacgccta cgtcgccacc gtaagcgagg cgctccgcat catcgccggc 420
 accctcgagg tccacgccgt caagcccgcg gccgaggagg tcaagggtcat ccccgccggc 480
 gagctgcagg tcatcgagaa ggtcgacgcc gccttcaagg tcgctgccac cgccgccaac 540
 gccgcccccg ccaacgacaa gttcaccgtc ttcgaggccg ccttcaacga cgccatcaag 600
 gcgagcacgg gcggcgcccta cgagagctac aagttcatcc ccgccctgga ggccgccgtc 660
 aagcaggcct acgccgccac cgtcgccacc gcgccggagg tcaagtacac tgtctttgag 720
 accgcactga aaaaggccat caccgccatg tccgaagcac agaaggctgc caagcccgcc 780
 gccgctgcca ccgccaccgc aaccgccgcc gttggcgcgg ccaccggcgc cgccaccgcc 840
 gctactggtg gctacaaagt c 861

100H94~2.TXT

<210> 96
 <211> 287
 <212> PRT
 <213> Phleum pratense

<400> 96

Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
 1 5 10 15
 Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Glu Pro Ala Gly
 20 25 30
 Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly
 35 40 45
 Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val Pro Pro Ala Asp Lys
 50 55 60
 Tyr Arg Thr Phe Val Ala Thr Phe Gly Ala Ala Ser Asn Lys Ala Phe
 65 70 75 80
 Ala Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser
 85 90 95
 Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr
 100 105 110
 Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val
 115 120 125
 Ala Thr Val Ser Glu Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val
 130 135 140
 His Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly
 145 150 155 160
 Glu Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala
 165 170 175
 Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu
 180 185 190
 Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu
 195 200 205
 Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr
 210 215 220
 Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu
 225 230 235 240

<400> 101
 gttgccaacg atcag 15

<210> 102
 <211> 31
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide primer

<400> 102
 gataccctct ttccacaggt tgcaccccaa g 31

<210> 103
 <211> 31
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide primer

<400> 103
 acctgtggaa agagggtatc gccatcaagg a 31

<210> 104
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide primer

<400> 104
 aacatttcag gaaatggagg gcc 23

<210> 105
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide primer

<400> 105
 tttcctgaaa tgttttcaac act 23

<210> 106
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide primer

<400> 106
 ttaagaacat cagctttccc gaa 23

<210> 107
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide primer
 <400> 107
 agctgatggtt cttaatgggtt cca 23

<210> 108
 <211> 23
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> oligonucleotide primer
 <400> 108
 ggaccatgca aacttcaaata aca 23

<210> 109
 <211> 23
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> oligonucleotide primer
 <400> 109
 agtttgcattg gtccacctca tca 23

<210> 110
 <211> 23
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> oligonucleotide primer
 <400> 110
 tttccctcag gcctcccttt caa 23

<210> 111
 <211> 23
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> oligonucleotide primer
 <400> 111
 aggcctgagg gaaagctgat ctt 23

<210> 112
 <211> 24
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> oligonucleotide primer
 <400> 112
 tgaaggatct ggagggcctg gaac 24

<210> 113
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> oligonucleotide primer

 <400> 113
 ccctccagat cttcaatgt tttc 24

<210> 114
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> oligonucleotide primer

 <400> 114
 ggcaactggt gatggaggat ccat 24

<210> 115
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> oligonucleotide primer

 <400> 115
 ccatcaccag ttgccactat cttt 24

<210> 116
 <211> 15
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> oligonucleotide primer

 <400> 116
 catgccatcc gtaag 15

<210> 117
 <211> 202
 <212> PRT
 <213> Vesputa

 <220>
 <221> MISC_FEATURE
 <222> (1)..(202)
 <223> where Xaa is any amino acid

<400> 117
 Asn Asn Tyr Cys Lys Ile Lys Cys Leu Lys Gly Gly Val His Thr Ala
 1 5 10 15
 Cys Lys Tyr Gly Ser Leu Lys Pro Asn Cys Gly Asn Lys Val Val Val
 20 25 30

100H94~2.TXT

Ser Tyr Gly Leu Thr Lys Gln Glu Lys Gln Asp Ile Leu Lys Glu His
35 40 45

Asn Asp Phe Arg Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro
50 55 60

Gly Pro Gln Pro Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asn Asp
65 70 75 80

Glu Leu Ala Tyr Val Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly
85 90 95

His Asp Thr Cys Arg Asp Val Ala Lys Tyr Gln Val Gly Gln Asn Val
100 105 110

Ala Leu Thr Gly Ser Thr Ala Ala Lys Tyr Asp Asp Pro Xaa Xaa Leu
115 120 125

Val Lys Met Trp Glu Asp Glu Val Lys Asp Tyr Asn Pro Lys Lys Lys
130 135 140

Phe Ser Gly Asn Asp Phe Leu Lys Thr Gly His Tyr Thr Gln Met Val
145 150 155 160

Trp Ala Asn Thr Lys Glu Val Gly Cys Gly Ser Ile Lys Tyr Ile Gln
165 170 175

Glu Lys Trp His Lys His Tyr Leu Val Cys Asn Tyr Gly Pro Ser Gly
180 185 190

Asn Phe Asn Glu Glu Leu Xaa Xaa Thr Lys
195 200

<210> 118
<211> 203
<212> PRT
<213> Vespuła

<220>
<221> MISC_FEATURE
<222> (1)..(203)
<223> where Xaa is any amino acid

<400> 118

Asn Asn Tyr Cys Lys Ile Lys Cys Leu Lys Gly Gly Val His Thr Ala
1 5 10 15

Cys Lys Tyr Gly Ser Leu Lys Pro Asn Cys Gly Asn Lys Val Val Val
20 25 30

Ser Tyr Gly Leu Thr Lys Gln Glu Lys Gln Asp Ile Leu Lys Glu His
35 40 45

100H94~2.TXT

Asn Asp Phe Arg Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro
50 55 60

Gly Pro Gln Pro Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asn Asp
65 70 75 80

Glu Leu Ala Tyr Val Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly
85 90 95

His Asp Thr Cys Arg Asp Val Ala Lys Tyr Gln Val Gly Gln Asn Val
100 105 110

Ala Leu Thr Gly Ser Thr Ala Ala Lys Tyr Asp Asp Pro Xaa Xaa Leu
115 120 125

Val Lys Met Trp Glu Asp Glu Val Lys Asp Tyr Asn Pro Lys Lys Lys
130 135 140

Phe Ser Gly Asn Asp Phe Leu Lys Thr Gly His Tyr Thr Gln Met Val
145 150 155 160

Trp Ala Asn Thr Lys Glu Val Gly Cys Gly Ser Ile Lys Tyr Ile Gln
165 170 175

Glu Lys Trp His Lys His Tyr Leu Val Cys Asn Tyr Gly Pro Ser Gly
180 185 190

Asn Phe Lys Asn Glu Glu Leu Xaa Xaa Thr Lys
195 200

<210> 119
<211> 201
<212> PRT
<213> Vespuła

<220>
<221> MISC_FEATURE
<222> (1)..(201)
<223> where Xaa is any amino acid

<400> 119

Asn Asn Tyr Cys Lys Ile Lys Cys Leu Lys Gly Gly Val His Thr Ala
1 5 10 15

Cys Lys Tyr Gly Ser Leu Lys Pro Asn Cys Gly Asn Lys Val Val Val
20 25 30

Ser Tyr Gly Leu Thr Lys Gln Glu Lys Gln Asp Ile Leu Lys Glu His
35 40 45

Asn Asp Phe Arg Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro
Page 114

50 55

Gly Pro Gln Pro Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asn Asp
65 70 75 80

Glu Leu Ala Tyr Val Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly
85 90 95

His Asp Thr Cys Arg Asp Xaa Ala Lys Tyr Gln Val Gly Gln Asn Val
100 105 110

Ala Leu Thr Gly Ser Thr Ala Ala Lys Tyr Asp Asp Pro Xaa Xaa Leu
115 120 125

Val Lys Met Trp Glu Asp Glu Val Lys Asp Tyr Asn Pro Lys Lys Lys
130 135 140

Phe Ser Gly Asn Phe Leu Lys Thr Gly His Tyr Thr Gln Met Val Trp
145 150 155 160

Ala Asn Thr Lys Glu Val Gly Cys Gly Ser Ile Lys Phe Ile Gln Glu
165 170 175

Lys Trp His Lys His Tyr Leu Val Cys Asn Tyr Gly Pro Ser Gly Asn
180 185 190

Phe Asn Glu Glu Leu Xaa Xaa Thr Lys
195 200

<210> 120
<211> 194
<212> PRT
<213> VespuLa

<220>
<221> MISC_FEATURE
<222> (1)..(194)
<223> where Xaa is any amino acid

<400> 120

Asn Asn Tyr Cys Lys Ile Lys Cys Leu Lys Gly Gly Val His Thr Ala
1 5 10 15

Cys Lys Tyr Gly Ser Leu Lys Pro Asn Cys Gly Asn Lys Val Val Ser
20 25 30

Tyr Gly Leu Thr Lys Gln Glu Lys Gln Asp Ile Leu Lys Glu His Asn
35 40 45

Asp Phe Arg Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro Gly
50 55 60

100H94~2.TXT

Pro Gln Pro Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asp Glu Leu
65 70 75 80

Ala Tyr Xaa Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly His Asp
85 90 95

Thr Cys Arg Asp Val Ala Lys Tyr Gln Val Gly Gln Asn Val Ala Leu
100 105 110

Thr Gly Ser Thr Ala Ala Tyr Asp Pro Xaa Xaa Leu Val Lys Met Trp
115 120 125

Glu Asp Glu Val Lys Asp Tyr Asn Pro Lys Lys Lys Phe Ser Asn Phe
130 135 140

Leu Lys Gly His Tyr Thr Gln Met Val Trp Ala Asn Thr Lys Glu Val
145 150 155 160

Gly Cys Gly Ser Ile Lys Tyr Ile Gln Glu Trp His Lys His Tyr Leu
165 170 175

Val Cys Asn Tyr Gly Pro Ser Gly Asn Phe Asn Glu Glu Leu Xaa Xaa
180 185 190

Thr Lys

<210> 121
<211> 198
<212> PRT
<213> Vesputa

<220>
<221> MISC_FEATURE
<222> (1)..(198)
<223> where Xaa can be any amino acid

<400> 121

Asn Asn Tyr Cys Lys Ile Lys Cys Leu Lys Gly Gly Val His Thr Ala
1 5 10 15

Cys Lys Tyr Gly Ser Leu Lys Pro Asn Cys Gly Asn Lys Xaa Val Val
20 25 30

Ser Tyr Gly Leu Thr Lys Glu Lys Gln Asp Ile Leu Lys Glu His Asn
35 40 45

Asp Phe Arg Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro Gly
50 55 60

Pro Gln Pro Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asn Asp Glu
65 70 75 80

100H94~2.TXT

Leu Ala Tyr Val Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly His
85 90 95

Asp Thr Cys Arg Asp Val Ala Lys Tyr Val Gly Gln Asn Val Ala Leu
100 105 110

Thr Gly Ser Thr Ala Lys Tyr Asp Pro Xaa Xaa Leu Val Lys Met Trp
115 120 125

Glu Asp Glu Val Lys Asp Tyr Asn Pro Lys Lys Lys Phe Ser Gly Asn
130 135 140

Asp Phe Leu Lys Thr Gly His Tyr Thr Gln Met Val Trp Ala Asn Thr
145 150 155 160

Lys Glu Val Gly Cys Gly Ser Ile Lys Tyr Ile Gln Glu Lys Trp His
165 170 175

Lys His Tyr Leu Val Cys Asn Tyr Gly Pro Ser Gly Asn Phe Asn Glu
180 185 190

Glu Leu Xaa Xaa Thr Lys
195

<210> 122
<211> 192
<212> PRT
<213> Vesputa

<220>
<221> MISC_FEATURE
<222> (1)..(192)
<223> where Xaa is any amino acid

<400> 122

Asn Asn Tyr Cys Lys Ile Lys Cys Leu Lys Gly Gly Val His Thr Ala
1 5 10 15

Cys Lys Tyr Ser Leu Lys Pro Asn Cys Asn Lys Val Val Tyr Gly Leu
20 25 30

Thr Lys Gln Glu Lys Gln Asp Ile Leu Lys Glu His Asn Asp Phe Arg
35 40 45

Xaa Xaa Ala Arg Gly Leu Glu Thr Arg Gly Asn Pro Gly Pro Gln Pro
50 55 60

Pro Ala Lys Asn Met Lys Asn Leu Val Trp Asp Glu Leu Ala Tyr Thr
65 70 75 80

Ala Gln Val Trp Ala Asn Gln Cys Gln Tyr Gly His Asp Thr Cys Arg
85 90 95

100H94~2.TXT

Asp Val Ala Lys Tyr Val Gly Gln Asn Val Ala Leu Thr Gly Ser Thr
100 105 110

Ala Ala Lys Tyr Asp Pro Xaa Xaa Leu Val Lys Met Trp Glu Asp Glu
115 120 125

Val Lys Asp Tyr Asn Pro Lys Lys Lys Phe Ser Asn Phe Leu Lys Gly
130 135 140

His Tyr Thr Gln Met Val Trp Ala Asn Thr Lys Glu Val Gly Cys Gly
145 150 155 160

Ser Ile Lys Tyr Ile Gln Xaa Lys Trp His Lys His Tyr Leu Val Cys
165 170 175

Asn Tyr Gly Pro Ser Gly Asn Phe Asn Glu Glu Leu Xaa Xaa Thr Lys
180 185 190

<210> 123
<211> 170
<212> PRT
<213> Vespuła

<220>
<221> MISC_FEATURE
<222> (1)..(170)
<223> where Xaa is any amino acid

<400> 123

Asn Tyr Cys Lys Ile Lys Cys Leu Lys Gly Gly Val His Thr Ala Cys
1 5 10 15

Lys Tyr Gly Thr Ser Lys Pro Asn Cys Gly Val Val Tyr Gly Leu Thr
20 25 30

Glu Lys Gln Thr Ile Leu Lys His Asn Asp Phe Arg Xaa Xaa Ala Xaa
35 40 45

Gly Leu Glu Thr Arg Gly Asn Pro Gly Pro Gln Pro Pro Ala Lys Asn
50 55 60

Met Asn Leu Val Trp Asn Asp Glu Leu Ala Xaa Ala Gln Val Trp Ala
65 70 75 80

Gln Cys Asn Gln Tyr Gly His Asp Thr Cys Lys Asp Lys Tyr Val Gly
85 90 95

Gln Asn Ile Ala Ile Thr Ala Ala Xaa Asp Pro Xaa Xaa Leu Val Lys
100 105 110

Met Trp Glu Glu Val Lys Asp Phe Asn Pro Trp Ser Asn Lys Thr Gly
Page 118

Asn Glu Val Xaa Xaa Lys
165

<210> 125
<211> 156
<212> PRT
<213> Vespuła

<220>
<221> MISC_FEATURE
<222> (1)..(156)
<223> where Xaa is any amino acid

<400> 125

Asn Asn Tyr Cys Lys Ile Lys Cys Xaa Gly Thr His Thr Cys Lys Tyr
1 5 10 15

Gly Thr Ser Lys Pro Asn Cys Gly Val Val Gly Leu Thr Lys Gln Glu
20 25 30

Phe Ile Leu Lys His Asn Phe Phe Arg Xaa Xaa Ala Arg Gly Leu Glu
35 40 45

Thr Arg Gly Asn Pro Gly Pro Gln Pro Pro Ala Lys Met Leu Val Trp
50 55 60

Asn Asp Glu Leu Ala Ile Ala Gln Val Trp Ala Asn Asn Cys Gln Tyr
65 70 75 80

Gly His Asp Cys Arg Ala Lys Tyr Val Gly Gln Asn Ile Ala Ile Thr
85 90 95

Ala Xaa Xaa Xaa Xaa Val Lys Met Trp Glu Asp Glu Val Lys Asp Tyr
100 105 110

Gln Asn Lys Gly His Tyr Thr Gln Met Val Trp Ala Thr Lys Glu Ile
115 120 125

Gly Cys Gly Ser Ile Lys Tyr Ile Trp His Lys His Tyr Leu Val Cys
130 135 140

Asn Tyr Gly Pro Gly Asn Asn Glu Leu Xaa Xaa Lys
145 150 155

<210> 126
<211> 155
<212> PRT
<213> Vespuła

<220>
<221> MISC_FEATURE
<222> (1)..(155)
<223> where Xaa is any amino acid

<400> 126

Asn Asn Tyr Cys Lys Ile Lys Cys Lys Gly Ile His Thr Cys Lys Tyr
 1 5 10 15
 Gly Thr Ser Lys Pro Asn Cys Gly Val Val Gly Leu Thr Lys Gln Glu
 20 25 30
 Glu Ile Leu Lys His Asn Xaa Phe Arg Xaa Xaa Ala Arg Gly Leu Glu
 35 40 45
 Thr Arg Gly Asn Pro Gly Pro Gln Pro Pro Ala Lys Met Leu Val Trp
 50 55 60
 Asn Asp Glu Leu Ala Ile Ala Gln Val Trp Ala Asn Gln Cys Asn Tyr
 65 70 75 80
 Gly His Asp Cys Arg Ala Lys Tyr Val Gly Gln Asn Ile Ala Thr Ser
 85 90 95
 Ala Xaa Xaa Xaa Xaa Val Lys Met Trp Glu Asp Glu Val Lys Asp Tyr
 100 105 110
 Gln Asn Lys Gly His Tyr Thr Gln Met Val Trp Ala Thr Lys Glu Ile
 115 120 125
 Gly Cys Gly Ser Tyr Ile Asp Trp His Arg His Tyr Leu Val Cys Asn
 130 135 140
 Tyr Gly Pro Gly Asn Asn Glu Ile Xaa Xaa Lys
 145 150 155

<210> 127

<211> 41

<212> DNA

<213> *Vespula vulgaris*

<400> 127

accacagcct ccagcgaaga atatgaaaaa tttggtatgg a

41

<210> 128

<211> 41

<212> DNA

<213> *Vespula vulgaris*

<400> 128

tccataccaa atttttcata ttcttcgctg gaggctgtgg t

41

<210> 129

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> ves v 5 mutant 1 sense primer

<400> 129
 ccagcggcta atatgaaaaa t 21

<210> 130
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Ves v 5 mutant 1 non-sense primer

<400> 130
 catattcttc gctggaggct g 21

<210> 131
 <211> 41
 <212> DNA
 <213> Vespuła vulgaris

<400> 131
 ggctaataca tgtcaatatg gtcacgatac ttgcagggat g 41

<210> 132
 <211> 41
 <212> DNA
 <213> Vespuła vulgaris

<400> 132
 catccctgca agtatcgtga ccatattgac attgattagc c 41

<210> 133
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Ves v 5 mutant 2 sense primer

<400> 133
 tgtcaatatg gtcacgatac t 21

<210> 134
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Ves v 5 mutant 2 non-sense primer

<400> 134
 gtgaccatat tgacattgat t 21

<210> 135
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 135
 attcatcagc tgcgagatag g 21

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<210> 136
 <211> 615
 <212> DNA
 <213> *Vespula vulgaris*

<400> 136
 aacaattatt gtaaaataaa atgtttgaaa ggaggtgtcc atactgcctg caaatatgga 60
 agtcttaaac cgaattgcgg taataaggta gtggtatcct atggtctaac gaaacaagag 120
 aaacaagaca tcttaaagga gcacaaatgac tttagacaaa aaattgcacg aggattggag 180
 actagaggta atcctggacc acagcctcca gcgaagaata tgaaaaattt ggtatggaac 240
 gacgagttag cttatgtcgc ccaagtgtgg gctaataaat gtcaatatgg tcacgatact 300
 tgcagggatg tagcaaaata tcaggttggg caaaacgtag ccttaacagg tagcacggct 360
 gctaaatacg atgatccagt taaactagtt aaaatgtggg aagatgaagt gaaagattat 420
 aatcctaaga aaaagttttc gggaaacgac tttctgaaaa ccggccatta cactcaaagt 480
 gtttgggcta acaccaagga agttggttgt ggaagtataa aatacattca agagaaatgg 540
 cacaacatt accttgtatg taattatgga ccagcggaa actttaagaa tgaggaactt 600
 tatcaaaca agtaa 615

<210> 137
 <211> 591
 <212> DNA
 <213> *Dermatophagoides pteronyssinus*

<400> 137
 cacaatttct tctttcttcc ttactactga tcattaatct gaaaacaaaa ccaaacaac 60
 cattcaaaat gatgtacaaa attttgtgtc tttcattggt ggctcgagcc gttgctcgtg 120
 atcaagtcga tgtcaaagat tgtgccaatc atgaaatcaa aaaagttttg gtaccaggat 180
 gccatgggtc agaaccatgt atcattcatc gtggtaaacc attccaattg gaagccgttt 240
 tcgaagccaa ccaaaacaca aaaacggcta aaattgaaat caaagcctca atcgatgggt 300
 tagaagttga tggtcccggt atcgatccaa atgcatgcca ttacatgaaa tgcccattgg 360
 ttaaaggaca acaatatgat attaaatata catggaatgt tccgaaaatt gcaccaaagt 420
 ctgaaaatgt tgctgctact gttaaagtta tgggtgatga tgggtgtttg gcctgtgcta 480
 ttgctactca tgctaaaatc cgcgattaaa tcaaacaaaa tttattgatt ttgtaatcac 540
 aaatgattga ttttctttcc aaaaaaaaaa taaataaaat tttgggaatt c 591

<210> 138
 <211> 146
 <212> PRT
 <213> *Dermatophagoides pteronyssinus*

<300>
 <308> GenBank / P49278
 <309> 1996-02-01
 <313> (1)..(146)

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<400> 138

Met Met Tyr Lys Ile Leu Cys Leu Ser Leu Leu Val Ala Ala Val Ala
 1 5 10 15
 Arg Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys
 20 25 30
 Val Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg
 35 40 45
 Gly Lys Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Thr
 50 55 60
 Lys Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val
 65 70 75 80
 Asp Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro
 85 90 95
 Leu Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro
 100 105 110
 Lys Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met
 115 120 125
 Gly Asp Asp Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile
 130 135 140
 Arg Asp
 145

<210> 139
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 139
 cagactaatt cgagctcggt accc

24

<210> 140
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 140
 tttcctgaaa tgttttcaac act

23

<210> 141
 <211> 23

<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 141
aacatttcag gaaatggagg gcc

23

<210> 142
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 142
cacgtagttg aaagggaggc cttc

24

<210> 143
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 143
tttcaactac gtgaaggaca gagt

24

<210> 144
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 144
ggagatgctc tccaatgtgt cgcc

24

<210> 145
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 145
ggagagcatc tccaacgaga taaa

24

<210> 146
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 146
acttgcttca acctgctctg cctt

24

<210> 147
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 147
 caggttgaag caagtaaaga aatg

24

<210> 148
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 148
 gcaggctcgac tctagaggat ccat

24

<210> 149
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 149
 cagactaatt cgacgtcggt accc

24

<210> 150
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 150
 cagtcgcggt gctgggataa caga

24

<210> 151
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 151
 ccagcaccgc gactgttcaa ggcc

24

<210> 152
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>

<223> primer
 <400> 152
 cactatgggtt atctcgttgg agat 24

<210> 153
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer
 <400> 153
 gagataacca tagtggcaac tggt 24

<210> 154
 <211> 45
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer
 <400> 154
 ttactgaatt cattagttgt aggcattccgg gtggcctttg aggta 45

<210> 155
 <211> 42
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer
 <400> 155
 ccgctcgaga aaagagatca agtcgatgtc gccgattgtg cc 42

<210> 156
 <211> 39
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer
 <400> 156
 cgttctagac tattaatcgc ggatttttagc atgagttgc 39

<210> 157
 <211> 67
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer
 <400> 157
 ccgctcgaga aaagagatca agtcgatgtc aaagattgtg ccaaccatga aatcaaagaa 60
 gttttgg 67

<210> 158
 <211> 39
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer

 <400> 158
 cgttctagac tattaatcgc ggattttagc atgagttgc 39

 <210> 159
 <211> 54
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer

 <400> 159
 cggggtacca ggatgtcatg gttcagaacc atgtatcatt aaccgtggta aacc 54

 <210> 160
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> sense primer

 <400> 160
 ggcgattaag ttgggtaacg ccaggg 26

 <210> 161
 <211> 33
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer

 <400> 161
 gcctcaatcg atggtttatc agttgatgtt ccc 33

 <210> 162
 <211> 33
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer

 <400> 162
 gggaacatca actgataaac catcgattga ggc 33

 <210> 163
 <211> 32
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> primer

<400> 163
catggcatgc aattacatga aatgccatt gg . 32

<210> 164
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> anti-sense primer

<400> 164
ggaaacagct atgacatga ttacgcc 27

<210> 165
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 165
ctacgcatgc cattacatga aatgccatt ggttaatgga caacaatatg 50

<210> 166
<211> 46
<212> DNA
<213> Artificial Sequence

<220>
<223> OB27 sense primer

<400> 166
ggaattcctc gagaaaagag atcaagtcga tgtcaaagat tgtgcc 46

<210> 167
<211> 129
<212> PRT
<213> Dermatophagoides pteronyssinus

<400> 167

Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val
1 5 10 15

Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg Gly
20 25 30

Lys Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Thr Lys
35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp
50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Val Lys Cys Pro Leu
65 70 75 80

Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
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Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met Gly
100 105 110

Asp Asp Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg
115 120 125

Asp

<210> 168
<211> 129
<212> PRT
<213> Dermatophagoides pteronyssinus

<400> 168

Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val
1 5 10 15

Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg Gly
20 25 30

Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Lys
35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp
50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu
65 70 75 80

Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
85 90 95

Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met Gly
100 105 110

Asp Asp Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg
115 120 125

Asp

<210> 169
<211> 129
<212> PRT
<213> Dermatophagoides pteronyssinus

<400> 169

Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val
1 5 10 15

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Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg Gly
20 25 30
Lys Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Ser Lys
35 40 45
Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp
50 55 60
Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu
65 70 75 80
Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
85 90 95
Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Ile Gly
100 105 110
Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg
115 120 125

Asp

<210> 170
<211> 129
<212> PRT
<213> Dermatophagoides pteronyssinus
<400> 170

Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val
1 5 10 15
Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg Gly
20 25 30
Lys Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Ser Lys
35 40 45
Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp
50 55 60
Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu
65 70 75 80
Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
85 90 95
Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met Gly
100 105 110

100H94~2.TXT

Asp Asp Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg
 115 120 125

Asp

<210> 171
 <211> 129
 <212> PRT
 <213> Dermatophagoides pteronyssinus
 <400> 171

Asp Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val
 1 5 10 15

Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg Gly
 20 25 30

Lys Pro Phe Gln Leu Glu Ala Leu Phe Glu Ala Asn Gln Asn Ser Lys
 35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp
 50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu
 65 70 75 80

Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
 85 90 95

Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met Gly
 100 105 110

Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg
 115 120 125

Asp

<210> 172
 <211> 128
 <212> PRT
 <213> Dermatophagoides pteronyssinus
 <400> 172

Gln Val Asp Val Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val Leu
 1 5 10 15

Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile His Arg Gly Lys
 20 25 30

Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Thr Lys Thr
 35 40 45

100H94~2.TXT

Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Glu Val Asp Val
50 55 60

Pro Gly Ile Asp Pro Asn Ala Cys His Tyr Met Lys Cys Pro Leu Val
65 70 75 80

Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys Ile
85 90 95

Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met Gly Asp
100 105 110

Asp Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg Asp
115 120 125

<210> 173
<211> 146
<212> PRT
<213> Dermatophagoides farinae

<400> 173

Met Ile Ser Lys Ile Leu Cys Leu Ser Leu Leu Val Ala Ala Val Val
1 5 10 15

Ala Asp Gln Val Asp Val Lys Asp Cys Ala Asn Asn Glu Ile Lys Lys
20 25 30

Val Met Val Asp Gly Cys His Gly Ser Asp Pro Cys Ile Ile His Arg
35 40 45

Gly Lys Pro Phe Thr Leu Glu Ala Leu Phe Asp Ala Asn Gln Asn Thr
50 55 60

Lys Thr Ala Lys Ile Glu Ile Lys Ala Ser Leu Asp Gly Leu Glu Ile
65 70 75 80

Asp Val Pro Gly Ile Asp Thr Asn Ala Cys His Phe Met Lys Cys Pro
85 90 95

Leu Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro
100 105 110

Lys Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Leu Ile
115 120 125

Gly Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile
130 135 140

Arg Asp
145

100H94~2.TXT

<210> 174
 <211> 138
 <212> PRT
 <213> Dermatophagoides farinae

<400> 174

Ser Leu Leu Val Ala Ala Val Val Ala Asp Gln Val Asp Val Lys Asp
 1 5 10 15

Cys Ala Asn Asn Glu Ile Lys Lys Val Met Val Asp Gly Cys His Gly
 20 25 30

Ser Asp Pro Cys Ile Ile His Arg Gly Lys Pro Phe Thr Leu Glu Ala
 35 40 45

Leu Phe Asp Ala Asn Gln Asn Ser Thr Thr Ala Lys Ile Glu Ile Lys
 50 55 60

Ala Ser Leu Asp Gly Leu Glu Ile Asp Val Pro Gly Ile Asp Thr Asn
 65 70 75 80

Ala Cys His Phe Met Lys Cys Pro Leu Val Lys Gly Gln Gln Tyr Asp
 85 90 95

Ala Lys Tyr Thr Trp Asn Val Pro Lys Ile Ala Pro Lys Ser Glu Asn
 100 105 110

Val Val Val Thr Val Lys Leu Val Gly Asp Asn Gly Val Leu Ala Cys
 115 120 125

Ala Ile Ala Thr His Ala Lys Ile Arg Asp
 130 135

<210> 175
 <211> 129
 <212> PRT
 <213> Dermatophagoides farinae

<400> 175

Asp Gln Val Asp Val Lys Asp Cys Ala Asn Asn Glu Ile Lys Lys Val
 1 5 10 15

Met Val Asp Gly Cys His Gly Ser Asp Pro Cys Ile Ile His Arg Gly
 20 25 30

Lys Pro Phe Thr Leu Glu Ala Leu Phe Asp Ala Asn Gln Asn Thr Lys
 35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Leu Asp Gly Leu Glu Ile Asp
 50 55 60

Val Pro Gly Ile Asp Thr Asn Ala Cys His Phe Val Lys Cys Pro Leu
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100H94~2.TXT
65 70 75 80
Val Lys Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
85 90 95
Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Leu Ile Gly
100 105 110
Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg
115 120 125

Asp

<210> 176
<211> 129
<212> PRT
<213> Dermatophagoides farinae

<400> 176

Asp Gln Val Asp Val Lys Asp Cys Ala Asn Asn Glu Ile Lys Lys Val
1 5 10 15
Met Val Asp Gly Cys His Gly Ser Asp Pro Cys Ile Ile His Arg Gly
20 25 30
Lys Pro Phe Thr Leu Glu Ala Leu Phe Asp Ala Asn Gln Asn Thr Lys
35 40 45
Thr Ala Lys Ile Glu Ile Lys Ala Ser Leu Asp Gly Leu Glu Ile Asp
50 55 60
Val Pro Gly Ile Asp Thr Asn Ala Cys His Phe Met Lys Cys Pro Leu
65 70 75 80
Val Lys Gly Gln Gln Tyr Asp Ala Lys Tyr Thr Trp Asn Val Pro Lys
85 90 95
Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Leu Val Gly
100 105 110
Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg
115 120 125

Asp

<210> 177
<211> 145
<212> PRT
<213> Euroglyphus maynei

<400> 177

100H94~2.TXT

Met Tyr Lys Ile Leu Cys Leu Ser Leu Leu Val Ala Ala Val Ala Ala
1 5 10 15

Asp Gln Val Asp Ile Lys Asp Cys Ala Asn His Glu Ile Lys Lys Val
20 25 30

Met Val Pro Gly Cys Lys Gly Ser Glu Pro Cys Val Ile His Arg Gly
35 40 45

Thr Ala Phe Gln Leu Glu Ala Val Phe Asp Ala Asn Gln Asn Ser Asn
50 55 60

Ala Ala Lys Ile Glu Ile Lys Ala Thr Ile Asp Gly Val Glu Ile Asp
65 70 75 80

Val Pro Gly Ile Asp Asn Asn Leu Cys His Phe Met Lys Cys Pro Leu
85 90 95

Val Lys Gly Gln Glu Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Arg
100 105 110

Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Leu Leu Gly
115 120 125

Asp Asn Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg
130 135 140

Asp
145

<210> 178
<211> 135
<212> PRT
<213> Euroglyphus maynei

<400> 178

Val Ala Ala Val Ala Ala Asp Gln Val Asp Val Lys Asp Cys Ala Asn
1 5 10 15

His Glu Ile Lys Lys Val Met Val Pro Gly Cys Lys Gly Ser Glu Pro
20 25 30

Cys Val Ile His Arg Gly Thr Ala Phe Gln Leu Glu Ala Val Phe Asp
35 40 45

Ala Asn Gln Asn Ser Asn Ala Ala Lys Ile Glu Ile Lys Ala Thr Ile
50 55 60

Asp Gly Val Glu Ile Asp Val Pro Gly Ile Asp Asn Asn Leu Cys His
65 70 75 80

100H94~2.TXT
Phe Met Lys Cys Pro Leu Val Lys Gly Gln Glu Tyr Asp Ile Lys Tyr
85 90 95

Thr Trp Asn Val Pro Arg Ile Ala Pro Lys Ser Glu Asn Val Val Val
100 105 110

Thr Val Lys Leu Leu Gly Asp Asn Gly Val Leu Ala Cys Ala Ile Ala
115 120 125

Thr His Ala Lys Ile Arg Asp
130 135

<210> 179
<211> 320
<212> PRT
<213> Dermatophagoides pteronyssinus

<400> 179

Met Lys Ile Val Leu Ala Ile Ala Ser Leu Leu Ala Leu Ser Ala Val
1 5 10 15

Tyr Ala Arg Pro Ser Ser Ile Lys Thr Phe Glu Glu Tyr Lys Lys Ala
20 25 30

Phe Asn Lys Ser Tyr Ala Thr Phe Glu Asp Glu Glu Ala Ala Arg Lys
35 40 45

Asn Phe Leu Glu Ser Val Lys Tyr Val Gln Ser Asn Gly Gly Ala Ile
50 55 60

Asn His Leu Ser Asp Leu Ser Leu Asp Glu Phe Lys Asn Arg Phe Leu
65 70 75 80

Met Ser Ala Glu Ala Phe Glu His Leu Lys Thr Gln Phe Asp Leu Asn
85 90 95

Ala Glu Thr Asn Ala Cys Ser Ile Asn Gly Asn Ala Pro Ala Glu Ile
100 105 110

Asp Leu Arg Gln Met Arg Thr Val Thr Pro Ile Arg Met Gln Gly Gly
115 120 125

Cys Gly Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala
130 135 140

Tyr Leu Ala Tyr Arg Asn Gln Ser Leu Asp Leu Ala Glu Gln Glu Leu
145 150 155 160

Val Asp Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Arg
165 170 175

Gly Ile Glu Tyr Ile Gln His Asn Gly Val Val Gln Glu Ser Tyr Tyr
Page 137

180 100H94~2.TXT 190
185

Arg Tyr Val Ala Arg Glu Gln Ser Cys Arg Arg Pro Asn Ala Gln Arg
195 200 205

Phe Gly Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asn Val Asn Lys
210 215 220

Ile Arg Glu Ala Leu Ala Gln Thr His Ser Ala Ile Ala Val Ile Ile
225 230 235 240

Gly Ile Lys Asp Leu Asp Ala Phe Arg His Tyr Asp Gly Arg Thr Ile
245 250 255

Ile Gln Arg Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn Ile
260 265 270

Val Gly Tyr Ser Asn Ala Gln Gly Val Asp Tyr Trp Ile Val Arg Asn
275 280 285

Ser Trp Asp Thr Asn Trp Gly Asp Asn Gly Tyr Gly Tyr Phe Ala Ala
290 295 300

Asn Ile Asp Leu Met Met Ile Glu Glu Tyr Pro Tyr Val Val Ile Leu
305 310 315 320

<210> 180
<211> 321
<212> PRT
<213> Euroglyphus maynei

<400> 180

Met Lys Ile Ile Leu Ala Ile Ala Ser Leu Leu Val Leu Ser Ala Val
1 5 10 15

Tyr Ala Arg Pro Ala Ser Ile Lys Thr Phe Glu Glu Phe Lys Lys Ala
20 25 30

Phe Asn Lys Thr Tyr Ala Thr Pro Glu Lys Glu Glu Val Ala Arg Lys
35 40 45

Asn Phe Leu Glu Ser Leu Lys Tyr Val Glu Ser Asn Lys Gly Ala Ile
50 55 60

Asn His Leu Ser Asp Leu Ser Leu Asp Glu Phe Lys Asn Gln Phe Leu
65 70 75 80

Met Asn Ala Asn Ala Phe Glu Gln Leu Lys Thr Gln Phe Asp Leu Asn
85 90 95

Ala Glu Thr Tyr Ala Cys Ser Ile Asn Ser Val Ser Leu Pro Ser Glu
100 105 110

100H94~2.TXT

Leu Asp Leu Arg Ser Leu Arg Thr Val Thr Pro Ile Arg Met Gln Gly
115 120 125

Gly Cys Gly Ser Cys Trp Ala Phe Ser Gly Val Ala Ser Thr Glu Ser
130 135 140

Ala Tyr Leu Ala Tyr Arg Asn Met Ser Leu Asp Leu Ala Glu Gln Glu
145 150 155 160

Leu Val Asp Cys Ala Ser Gln Asn Gly Cys His Gly Asp Thr Ile Pro
165 170 175

Arg Gly Ile Glu Tyr Ile Gln Gln Asn Gly Val Val Gln Glu His Tyr
180 185 190

Tyr Pro Tyr Val Ala Arg Glu Gln Ser Cys His Arg Pro Asn Ala Gln
195 200 205

Arg Tyr Gly Leu Lys Asn Tyr Cys Gln Ile Ser Pro Pro Asp Ser Asn
210 215 220

Lys Ile Arg Gln Ala Leu Thr Gln Thr His Thr Ala Val Ala Val Ile
225 230 235 240

Ile Gly Ile Lys Asp Leu Asn Ala Phe Arg His Tyr Asp Gly Arg Thr
245 250 255

Ile Met Gln His Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn
260 265 270

Ile Val Gly Tyr Gly Asn Thr Gln Gly Val Asp Tyr Trp Ile Val Arg
275 280 285

Asn Ser Trp Asp Thr Thr Trp Gly Asp Asn Gly Tyr Gly Tyr Phe Ala
290 295 300

Ala Asn Ile Asn Leu Met Met Ile Glu Gln Tyr Pro Tyr Val Val Met
305 310 315 320

Leu

<210> 181
<211> 246
<212> PRT
<213> Euroglyphus maynei
<400> 181

Lys Asn Gln Phe Leu Met Asn Ala Asn Ala Phe Glu Gln Leu Lys Thr
1 5 10 15

100H94~2.TXT

Gln Phe Asp Leu Asn Ala Glu Thr Tyr Ala Cys Ser Ile Asn Ser Val
20 25 30

Ser Leu Pro Ser Glu Leu Asp Leu Arg Ser Leu Arg Thr Val Thr Pro
35 40 45

Ile Arg Met Gln Gly Gly Cys Gly Ser Cys Trp Ala Phe Ser Gly Val
50 55 60

Ala Ser Thr Glu Ser Ala Tyr Leu Ala Tyr Arg Asn Met Ser Leu Asp
65 70 75 80

Leu Ala Glu Gln Glu Leu Val Asp Cys Ala Ser Gln Asn Gly Cys His
85 90 95

Gly Asp Thr Ile Pro Arg Gly Ile Glu Tyr Ile Gln Gln Asn Gly Val
100 105 110

Val Gln Glu His Tyr Tyr Pro Tyr Val Ala Arg Glu Gln Ser Cys His
115 120 125

Arg Pro Asn Ala Gln Arg Tyr Gly Leu Lys Asn Tyr Cys Gln Ile Ser
130 135 140

Pro Pro Asp Ser Asn Lys Ile Arg Gln Ala Leu Thr Gln Thr His Thr
145 150 155 160

Ala Val Ala Val Ile Ile Gly Ile Lys Asp Leu Asn Ala Phe Arg His
165 170 175

Tyr Asp Gly Arg Thr Ile Met Gln His Asp Asn Gly Tyr Gln Pro Asn
180 185 190

Tyr His Ala Val Asn Ile Val Gly Tyr Gly Asn Thr Gln Gly Val Asp
195 200 205

Tyr Trp Ile Val Arg Asn Ser Trp Asp Thr Thr Trp Gly Asp Asn Gly
210 215 220

Tyr Gly Tyr Phe Ala Ala Asn Ile Asn Leu Met Met Ile Glu Gln Tyr
225 230 235 240

Pro Tyr Val Val Met Leu
245

<210> 182
<211> 327
<212> PRT
<213> Euroglyphus maynei
<400> 182

100H94~2.TXT

Lys His Leu Ser Thr Ile Met Lys Ile Ile Leu Ala Ile Ala Ser Leu
 1 5 10 15
 Leu Val Leu Ser Ala Val Tyr Ala Arg Pro Ala Ser Ile Lys Thr Phe
 20 25 30
 Glu Glu Phe Lys Lys Ala Phe Asn Lys Ser Tyr Ala Thr Pro Glu Lys
 35 40 45
 Glu Glu Val Ala Arg Lys Asn Phe Leu Glu Ser Leu Lys Tyr Val Glu
 50 55 60
 Ser Asn Lys Gly Ala Ile Asn His Leu Ser Asp Leu Ser Leu Asp Glu
 65 70 75 80
 Phe Lys Asn Gln Phe Leu Met Asn Ala Asn Ala Phe Glu Gln Leu Lys
 85 90 95
 Thr Gln Phe Asp Leu Asn Ala Glu Thr Tyr Ala Cys Ser Ile Asn Ser
 100 105 110
 Val Ser Leu Pro Ser Glu Leu Asp Leu Arg Ser Leu Arg Thr Val Thr
 115 120 125
 Pro Ile Arg Met Gln Gly Gly Cys Gly Ser Cys Trp Ala Phe Ser Gly
 130 135 140
 Val Ala Ser Thr Glu Ser Ala Tyr Leu Ala Tyr Arg Asn Met Ser Leu
 145 150 155 160
 Asp Leu Ala Glu Gln Glu Leu Val Asp Cys Ala Ser Gln Asn Gly Cys
 165 170 175
 His Gly Asp Thr Ile Pro Arg Gly Ile Glu Tyr Ile Gln Gln Asn Gly
 180 185 190
 Val Val Gln Glu His Tyr Tyr Pro Tyr Val Ala Arg Glu Gln Ser Cys
 195 200 205
 His Arg Pro Asn Ala Gln Arg Tyr Gly Leu Lys Asn Tyr Cys Gln Ile
 210 215 220
 Ser Pro Pro Asp Ser Asn Lys Ile Arg Gln Ala Leu Thr Gln Thr His
 225 230 235 240
 Thr Ala Val Ala Val Ile Ile Gly Ile Lys Asp Leu Asn Ala Phe Arg
 245 250 255
 His Tyr Asp Gly Arg Thr Ile Met Gln His Asp Asn Gly Tyr Gln Pro
 260 265 270

100H94~2.TXT
 Asn Tyr His Ala Val Asn Ile Val Gly Tyr Gly Asn Thr Gln Gly Val
 275 280 285

Asp Tyr Trp Ile Val Arg Asn Ser Trp Asp Thr Thr Trp Gly Asp Asn
 290 295 300

Gly Tyr Gly Tyr Phe Ala Ala Asn Ile Asn Leu Met Met Ile Glu Gln
 305 310 315 320

Tyr Pro Tyr Val Val Ile Leu
 325

<210> 183
 <211> 321
 <212> PRT
 <213> Dermatophagoides farinae
 <400> 183

Met Lys Phe Val Leu Ala Ile Ala Ser Leu Leu Ala Leu Ser Thr Val
 1 5 10 15

Tyr Ala Arg Pro Ala Ser Ile Lys Thr Phe Glu Glu Phe Lys Lys Ala
 20 25 30

Phe Asn Lys Asn Tyr Ala Thr Val Glu Glu Glu Glu Val Ala Arg Lys
 35 40 45

Asn Phe Leu Glu Ser Leu Lys Tyr Val Glu Ala Asn Lys Gly Ala Ile
 50 55 60

Asn His Leu Ser Asp Leu Ser Leu Asp Glu Phe Lys Asn Arg Phe Leu
 65 70 75 80

Met Ser Ala Glu Ala Phe Glu Gln Leu Lys Thr Gln Phe Asp Leu Asn
 85 90 95

Ala Glu Thr Ser Ala Cys Arg Ile Asn Ser Val Asn Val Pro Ser Glu
 100 105 110

Leu Asp Leu Arg Ser Leu Arg Thr Val Thr Pro Ile Arg Met Gln Gly
 115 120 125

Gly Cys Gly Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser
 130 135 140

Ala Tyr Leu Ala Tyr Arg Asn Thr Ser Leu Asp Leu Ser Glu Gln Glu
 145 150 155 160

Leu Val Asp Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro
 165 170 175

Arg Gly Ile Glu Tyr Ile Gln Gln Asn Gly Val Val Glu Glu Arg Ser
 Page 142

180 100H94~2.TXT 190
185

Tyr Pro Tyr Val Ala Arg Glu Gln Arg Cys Arg Arg Pro Asn Ser Gln
195 200 205

His Tyr Gly Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asp Val Lys
210 215 220

Gln Ile Arg Glu Ala Leu Thr Gln Thr His Thr Ala Ile Ala Val Ile
225 230 235 240

Ile Gly Ile Lys Asp Leu Arg Ala Phe Gln His Tyr Asp Gly Arg Thr
245 250 255

Ile Ile Gln His Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn
260 265 270

Ile Val Gly Tyr Gly Ser Thr Gln Gly Asp Asp Tyr Trp Ile Val Arg
275 280 285

Asn Ser Trp Asp Thr Thr Trp Gly Asp Ser Gly Tyr Gly Tyr Phe Gln
290 295 300

Ala Gly Asn Asn Leu Met Met Ile Glu Gln Tyr Pro Tyr Val Val Ile
305 310 315 320

Met

<210> 184
<211> 211
<212> PRT
<213> Euroglyphus maynei
<400> 184

Thr Tyr Ala Cys Ser Ile Asn Ser Val Ser Leu Pro Ser Glu Leu Asp
1 5 10 15

Leu Arg Ser Leu Arg Thr Val Thr Pro Ile Arg Met Gln Gly Gly Cys
20 25 30

Gly Ser Cys Trp Ala Phe Ser Gly Val Ala Ser Thr Glu Ser Ala Tyr
35 40 45

Leu Ala Tyr Arg Asn Met Ser Leu Asp Leu Ala Glu Gln Glu Leu Val
50 55 60

Asp Cys Ala Ser Gln Asn Gly Cys His Gly Asp Thr Ile Pro Arg Gly
65 70 75 80

Ile Glu Tyr Ile Gln Gln Asn Gly Val Val Gln Glu His Tyr Tyr Pro
85 90 95

100H94~2.TXT

Tyr Val Ala Arg Glu Gln Ser Cys His Arg Pro Asn Ala Gln Arg Tyr
100 105 110

Gly Leu Lys Asn Tyr Cys Gln Ile Ser Pro Pro Asp Ser Asn Lys Ile
115 120 125

Arg Gln Ala Leu Thr Gln Thr His Thr Ala Val Ala Val Ile Ile Gly
130 135 140

Ile Lys Asp Leu Asn Ala Phe Arg His Tyr Asp Gly Arg Thr Ile Met
145 150 155 160

Gln His Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn Ile Val
165 170 175

Gly Tyr Gly Asn Thr Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser
180 185 190

Trp Asp Thr Thr Trp Gly Asp Asn Gly Tyr Gly Tyr Phe Ala Ala Asn
195 200 205

Ile Asn Leu
210

<210> 185
<211> 210
<212> PRT
<213> Dermatophagoides farinae
<400> 185

Ser Ala Cys Arg Ile Asn Ser Val Asn Val Pro Ser Glu Leu Asp Leu
1 5 10 15

Arg Ser Leu Arg Thr Val Thr Pro Ile Arg Met Gln Gly Gly Cys Gly
20 25 30

Ser Cys Trp Ala Phe Ser Gly Val Ala Ala Thr Glu Ser Ala Tyr Leu
35 40 45

Ala Tyr Arg Asn Thr Ser Leu Asp Leu Ser Glu Gln Glu Leu Val Asp
50 55 60

Cys Ala Ser Gln His Gly Cys His Gly Asp Thr Ile Pro Arg Gly Ile
65 70 75 80

Glu Tyr Ile Gln Gln Asn Gly Val Val Glu Glu Arg Ser Tyr Pro Tyr
85 90 95

Val Ala Arg Glu Gln Gln Cys Arg Arg Pro Asn Ser Gln His Tyr Gly
100 105 110

100H94~2.TXT

Ile Ser Asn Tyr Cys Gln Ile Tyr Pro Pro Asp Val Lys Gln Ile Arg
115 120 125

Glu Ala Leu Thr Gln Thr His Thr Ala Ile Ala Val Ile Ile Gly Ile
130 135 140

Lys Asp Leu Arg Ala Phe Gln His Tyr Asp Gly Arg Thr Ile Ile Gln
145 150 155 160

His Asp Asn Gly Tyr Gln Pro Asn Tyr His Ala Val Asn Ile Val Gly
165 170 175

Tyr Gly Ser Thr Gln Gly Val Asp Tyr Trp Ile Val Arg Asn Ser Trp
180 185 190

Asp Thr Thr Trp Gly Asp Ser Gly Tyr Gly Tyr Phe Gln Ala Gly Asn
195 200 205

Asn Leu
210

<210> 186
<211> 312
<212> PRT
<213> Phleum pratense
<400> 186

Met Ala Val His Gln Tyr Thr Val Ala Leu Phe Leu Ala Val Ala Leu
1 5 10 15

Val Ala Gly Pro Ala Gly Ser Tyr Ala Ala Asp Leu Gly Tyr Gly Pro
20 25 30

Ala Thr Pro Ala Ala Pro Ala Ala Gly Tyr Thr Pro Ala Thr Pro Ala
35 40 45

Ala Pro Ala Gly Ala Glu Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln
50 55 60

Lys Leu Ile Glu Lys Ile Asn Ala Gly Phe Lys Ala Ala Leu Ala Ala
65 70 75 80

Ala Ala Gly Val Pro Pro Ala Asp Lys Tyr Arg Thr Phe Val Ala Thr
85 90 95

Phe Gly Ala Ala Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Gly Glu
100 105 110

Pro Lys Gly Ala Ala Glu Ser Ser Ser Lys Ala Ala Leu Thr Ser Lys
115 120 125

100H94~2.TXT

Leu Asp Ala Ala Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr
 130 135 140

Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala Thr Val Ser Glu Ala Leu
 145 150 155 160

Arg Ile Ile Ala Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala
 165 170 175

Glu Glu Val Lys Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys
 180 185 190

Val Asp Ala Ala Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro
 195 200 205

Ala Asn Asp Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Asp Ala Ile
 210 215 220

Lys Ala Ser Thr Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala
 225 230 235 240

Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala
 245 250 255

Pro Glu Val Lys Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile
 260 265 270

Thr Ala Met Ser Glu Ala Gln Lys Ala Ala Lys Pro Ala Ala Ala Ala
 275 280 285

Thr Ala Thr Ala Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr
 290 295 300

Ala Ala Thr Gly Gly Tyr Lys Val
 305 310

<210> 187

<211> 312

<212> PRT

<213> Phleum pratense

<400> 187

Met Ala Val His Gln Tyr Thr Val Ala Leu Phe Leu Ala Val Ala Leu
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Val Ala Gly Pro Ala Ala Ser Tyr Ala Ala Asp Leu Gly Tyr Gly Pro
 20 25 30

Ala Thr Pro Ala Ala Pro Ala Ala Gly Tyr Thr Pro Ala Thr Pro Ala
 35 40 45

Ala Pro Ala Glu Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln
 Page 146

50

55

Lys Leu Ile Glu Lys Ile Asn Ala Gly Phe Lys Ala Ala Leu Ala Ala
65 70 75 80
Ala Ala Gly Val Gln Pro Ala Asp Lys Tyr Arg Thr Phe Val Ala Thr
85 90 95
Phe Gly Ala Ala Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Gly Glu
100 105 110
Pro Lys Gly Ala Ala Glu Ser Ser Ser Lys Ala Ala Leu Thr Ser Lys
115 120 125
Leu Asp Ala Ala Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr
130 135 140
Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu
145 150 155 160
Arg Ile Ile Ala Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala
165 170 175
Glu Glu Val Lys Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys
180 185 190
Val Asp Ala Ala Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro
195 200 205
Ala Asn Asp Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Asp Ala Ile
210 215 220
Lys Ala Ser Thr Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala
225 230 235 240
Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala
245 250 255
Pro Glu Val Lys Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile
260 265 270
Thr Ala Met Ser Glu Ala Gln Lys Ala Ala Lys Pro Ala Ala Ala Ala
275 280 285
Thr Ala Thr Ala Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr
290 295 300
Ala Ala Thr Gly Gly Tyr Lys Val
305 310

<210> 188

<211> 286
 <212> PRT
 <213> Phleum pratense

<400> 188

Ala Asp Leu Gly Tyr Gly Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
 1 5 10 15

Tyr Thr Pro Ala Thr Pro Ala Ala Pro Ala Gly Ala Asp Ala Ala Gly
 20 25 30

Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly
 35 40 45

Phe Lys Ala Ala Leu Ala Gly Ala Gly Val Gln Pro Ala Asp Lys Tyr
 50 55 60

Arg Thr Phe Val Ala Thr Phe Gly Pro Ala Ser Asn Lys Ala Phe Ala
 65 70 75 80

Glu Gly Leu Ser Gly Glu Pro Lys Gly Ala Ala Glu Ser Ser Ser Lys
 85 90 95

Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr Lys
 100 105 110

Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala
 115 120 125

Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val His
 130 135 140

Ala Val Lys Pro Ala Ala Glu Glu Val Lys Val Ile Pro Ala Gly Glu
 145 150 155 160

Leu Gln Val Ile Glu Lys Val Asp Ala Ala Phe Lys Val Ala Ala Thr
 165 170 175

Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu Ala
 180 185 190

Ala Phe Asn Asp Glu Ile Lys Ala Ser Thr Gly Gly Ala Tyr Glu Ser
 195 200 205

Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala
 210 215 220

Ala Thr Val Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Phe Glu Thr
 225 230 235 240

Ala Leu Lys Lys Ala Ile Thr Ala Met Ser Glu Ala Gln Lys Ala Ala
 245 250 255

100H94~2.TXT

Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Ala Ala Val Gly Ala
260 265 270

Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly Gly Tyr Lys Val
275 280 285

<210> 189

<211> 333

<212> PRT

<213> Poa pratensis

<400> 189

Met Ala Val His Gln Tyr Thr Val Ala Leu Phe Leu Ala Val Ala Leu
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Val Ala Gly Pro Ala Ala Ser Tyr Ala Ala Asp Val Gly Tyr Gly Ala
20 25 30

Pro Ala Thr Leu Ala Thr Pro Ala Thr Pro Ala Ala Pro Ala Ala Gly
35 40 45

Tyr Thr Pro Ala Ala Pro Ala Gly Ala Ala Pro Lys Ala Thr Thr Asp
50 55 60

Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly Phe Lys Ala Ala Val
65 70 75 80

Ala Ala Ala Ala Gly Val Pro Ala Val Asp Lys Tyr Lys Thr Phe Val
85 90 95

Ala Thr Phe Gly Thr Ala Ser Asn Lys Ala Phe Ala Glu Ala Leu Ser
100 105 110

Thr Glu Pro Lys Gly Ala Ala Ala Ala Ser Ser Asn Ala Val Leu Thr
115 120 125

Ser Lys Leu Asp Ala Ala Tyr Lys Leu Ala Tyr Lys Ser Ala Glu Gly
130 135 140

Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu
145 150 155 160

Ala Leu Arg Ile Ile Ala Gly Thr Leu Glu Val His Ala Val Lys Pro
165 170 175

Ala Gly Glu Glu Val Lys Ala Ile Pro Ala Gly Glu Leu Gln Val Ile
180 185 190

Asp Lys Val Asp Ala Ala Phe Lys Val Ala Ala Thr Ala Ala Asn Ala
195 200 205

100H94~2.TXT

Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Asp
210 215 220

Ala Ile Lys Ala Ser Thr Gly Gly Ala Tyr Gln Ser Tyr Lys Phe Ile
225 230 235 240

Pro Ala Leu Glu Ala Ala Val Lys Gln Ser Tyr Ala Ala Thr Val Ala
245 250 255

Thr Ala Pro Ala Val Lys Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys
260 265 270

Ala Ile Thr Ala Met Ser Gln Ala Gln Lys Ala Ala Lys Pro Ala Ala
275 280 285

Ala Val Thr Ala Thr Ala Thr Gly Ala Val Gly Ala Ala Thr Gly Ala
290 295 300

Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Ala Gly Gly Tyr Lys
305 310 315 320

Thr Gly Ala Ala Thr Pro Thr Ala Gly Gly Tyr Lys Val
325 330

<210> 190
<211> 307
<212> PRT
<213> Poa pratensis
<400> 190

Met Ala Val Gln Lys Tyr Thr Val Ala Leu Phe Leu Val Ala Leu Val
1 5 10 15

Val Gly Pro Ala Ala Ser Tyr Ala Ala Asp Leu Ser Tyr Gly Ala Pro
20 25 30

Ala Thr Pro Ala Ala Pro Ala Ala Gly Tyr Thr Pro Ala Ala Pro Ala
35 40 45

Gly Ala Ala Pro Lys Ala Thr Thr Asp Glu Gln Lys Met Ile Glu Lys
50 55 60

Ile Asn Val Gly Phe Lys Ala Ala Val Ala Ala Ala Gly Gly Val Pro
65 70 75 80

Ala Ala Asn Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala Ser
85 90 95

Asn Lys Ala Phe Ala Glu Ala Leu Ser Thr Glu Pro Lys Gly Ala Ala
100 105 110

100H94~2.TXT

Val Asp Ser Ser Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala Tyr
115 120 125

Lys Leu Ala Tyr Lys Ser Ala Glu Gly Ala Thr Pro Glu Ala Lys Tyr
130 135 140

Asp Asp Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala Gly
145 150 155 160

Thr Leu Glu Val His Gly Val Lys Pro Ala Ala Glu Glu Val Lys Ala
165 170 175

Thr Pro Ala Gly Glu Leu Gln Val Ile Asp Lys Val Asp Ala Ala Phe
180 185 190

Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys Phe
195 200 205

Thr Val Phe Glu Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser Thr Gly
210 215 220

Gly Ala Tyr Gln Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val
225 230 235 240

Lys Gln Ser Tyr Ala Ala Thr Val Ala Thr Ala Pro Ala Val Lys Tyr
245 250 255

Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Met Ser Gln
260 265 270

Ala Gln Lys Ala Ala Lys Pro Ala Ala Ala Ala Thr Gly Thr Ala Thr
275 280 285

Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Ala Gly Gly
290 295 300

Tyr Lys Val
305

<210> 191
<211> 276
<212> PRT
<213> Phleum pratense

<400> 191

Ala Asp Leu Gly Tyr Gly Gly Pro Ala Thr Pro Ala Ala Pro Ala Glu
1 5 10 15

Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu
20 25 30

Lys Ile Asn Asp Gly Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val
Page 151

100H94~2.TXT

35	40	45
Pro Pro Ala Asp Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala		
50	55	60
Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Ala Glu Pro Lys Gly Ala		
65	70	75
Ala Glu Ser Ser Ser Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala		
85	90	95
Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys		
100	105	110
Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala		
115	120	125
Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala Glu Glu Val Lys		
130	135	140
Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys Val Asp Ser Ala		
145	150	155
Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys		
165	170	175
Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Ala Ser Thr		
180	185	190
Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala		
195	200	205
Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys		
210	215	220
Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Met Ser		
225	230	235
Glu Ala Gln Lys Ala Ala Lys Pro Ala Thr Glu Ala Thr Ala Thr Ala		
245	250	255
Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly		
260	265	270
Gly Tyr Lys Val		
275		

<210> 192
 <211> 276
 <212> PRT
 <213> Phleum pratense

<400> 192

Ala Asp Leu Gly Tyr Gly Gly Pro Ala Thr Pro Ala Ala Pro Ala Glu
 1 5 10 15
 Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu
 20 25 30
 Lys Ile Asn Asp Gly Phe Lys Ala Ala Leu Ala Ala Ala Gly Val
 35 40 45
 Pro Pro Ala Asp Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala
 50 55 60
 Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Ala Glu Pro Lys Gly Ala
 65 70 75 80
 Ala Glu Ser Ser Ser Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala
 85 90 95
 Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys
 100 105 110
 Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala
 115 120 125
 Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala Glu Glu Val Lys
 130 135 140
 Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys Val Asp Ser Ala
 145 150 155 160
 Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys
 165 170 175
 Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Ala Ser Thr
 180 185 190
 Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala
 195 200 205
 Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys
 210 215 220
 Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Met Ser
 225 230 235 240
 Glu Ala Gln Lys Ala Ala Lys Pro Ala Ala Ala Thr Ala Thr Ala
 245 250 255
 Thr Ser Ala Val Gly Ala Ala Thr Gly Ala Thr Thr Ala Ala Ala Gly
 260 265 270

Gly Tyr Lys Val
275

<210> 193
 <211> 276
 <212> PRT
 <213> Phleum pratense
 <400> 193

Ala Asp Leu Gly Tyr Gly Gly Pro Ala Thr Pro Ala Ala Pro Ala Glu
1 5 10 15

Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu
20 25 30

Lys Ile Asn Asp Gly Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val
35 40 45

Pro Pro Ala Asp Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala
50 55 60

Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Ala Glu Pro Lys Gly Ala
65 70 75 80

Ala Glu Ser Ser Ser Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala
85 90 95

Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Lys
100 105 110

Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala
115 120 125

Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala Glu Glu Val Lys
130 135 140

Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys Val Asp Ser Ala
145 150 155 160

Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys
165 170 175

Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Ala Ser Thr
180 185 190

Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala
195 200 205

Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys
210 215 220

100H94~2.TXT

Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Phe Thr Ala Met Ser
225 230 235 240

Glu Ala Gln Lys Ala Ala Lys Pro Ala Thr Glu Ala Thr Ala Thr Ala
245 250 255

Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly
260 265 270

Gly Tyr Lys Val
275

<210> 194
<211> 276
<212> PRT
<213> Phleum pratense

<400> 194

Ala Asp Leu Gly Tyr Gly Gly Pro Ala Thr Pro Ala Ala Pro Ala Glu
1 5 10 15

Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu
20 25 30

Lys Ile Asn Asp Gly Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val
35 40 45

Pro Pro Ala Asp Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala
50 55 60

Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Ala Glu Pro Lys Gly Ala
65 70 75 80

Ala Glu Ser Ser Ser Lys Ala Ala Leu Thr Ser Lys Leu Asp Ala Ala
85 90 95

Tyr Lys Leu Ala Tyr Lys Thr Ala Glu Gly Ala Thr Pro Glu Ala Glu
100 105 110

Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala
115 120 125

Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala Glu Glu Val Lys
130 135 140

Val Ile Pro Ala Gly Glu Leu Gln Val Ile Glu Lys Val Asp Ser Ala
145 150 155 160

Leu Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys
165 170 175

100H94~2.TXT
Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Ala Ser Thr
180 185 190

Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala
195 200 205

Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys
210 215 220

Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Thr Ser
225 230 235 240

Glu Ala Gln Lys Ala Ala Lys Pro Ala Thr Glu Ala Thr Ala Thr Ala
245 250 255

Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly
260 265 270

Gly Tyr Lys Val
275

<210> 195
<211> 276
<212> PRT
<213> Phleum pratense

<400> 195

Ala Asp Leu Gly Tyr Gly Gly Pro Ala Thr Pro Ala Ala Pro Ala Glu
1 5 10 15

Ala Ala Pro Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu
20 25 30

Lys Ile Asn Asp Gly Phe Lys Ala Ala Leu Ala Ala Ala Ala Gly Val
35 40 45

Pro Pro Ala Asp Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala Ala
50 55 60

Ser Asn Lys Ala Phe Ala Glu Gly Leu Ser Ala Glu Pro Lys Gly Ala
65 70 75 80

Ala Glu Ser Ser Ser Lys Gly Ala Leu Thr Ser Lys Leu Glu Ala Ala
85 90 95

Tyr Lys Leu Ala Tyr Lys Thr Ser Glu Gly Ala Thr Pro Glu Ala Lys
100 105 110

Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile Ala
115 120 125

Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Ala Glu Glu Val Lys
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135

Val Ile Pro Ala Gly Glu Leu Gln Phe Ile Glu Lys Val Asp Ser Ala
145 150 155 160
Leu Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys
165 170 175
Phe Thr Val Phe Glu Ala Ala Phe Asn His Ala Ile Lys Ala Ser Thr
180 185 190
Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala
195 200 205
Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala Pro Glu Val Lys
210 215 220
Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Met Ser
225 230 235 240
Glu Ala Gln Lys Ala Ala Lys Pro Ala Thr Glu Ala Thr Ala Thr Ala
245 250 255
Thr Ala Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Thr Gly
260 265 270
Gly Tyr Lys Val
275

<210> 196
<211> 373
<212> PRT
<213> Poa pratensis

<400> 196

Met Asp Lys Ala Asn Gly Ala Tyr Lys Thr Ala Leu Lys Ala Ala Ser
1 5 10 15
Ala Val Ala Pro Ala Glu Lys Phe Pro Val Phe Gln Ala Thr Phe Asp
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Lys Asn Leu Lys Glu Gly Leu Ser Gly Pro Asp Ala Val Gly Phe Ala
35 40 45
Lys Lys Leu Asp Ala Phe Ile Gln Thr Ser Tyr Leu Ser Thr Lys Ala
50 55 60
Ala Glu Pro Lys Glu Lys Phe Asp Leu Phe Val Leu Ser Leu Thr Glu
65 70 75 80
Val Leu Arg Phe Met Ala Gly Ala Val Lys Ala Pro Pro Ala Ser Lys
85 90 95

100H94~2.TXT

Phe Pro Ala Lys Pro Ala Pro Lys Val Ala Ala Tyr Thr Pro Ala Ala
 100 105 110
 Pro Ala Gly Ala Ala Pro Lys Ala Thr Thr Asp Glu Gln Lys Leu Ile
 115 120 125
 Glu Lys Ile Asn Val Gly Phe Lys Ala Ala Val Ala Ala Ala Gly
 130 135 140
 Val Pro Ala Ala Ser Lys Tyr Lys Thr Phe Val Ala Thr Phe Gly Ala
 145 150 155 160
 Ala Ser Asn Lys Ala Phe Ala Glu Ala Leu Ser Thr Glu Pro Lys Gly
 165 170 175
 Ala Ala Val Ala Ser Ser Lys Ala Val Leu Thr Ser Lys Leu Asp Ala
 180 185 190
 Ala Tyr Lys Leu Ala Tyr Lys Ser Ala Glu Gly Ala Thr Pro Glu Ala
 195 200 205
 Lys Tyr Asp Ala Tyr Val Ala Thr Leu Ser Glu Ala Leu Arg Ile Ile
 210 215 220
 Ala Gly Thr Leu Glu Val His Gly Val Lys Pro Ala Ala Glu Glu Val
 225 230 235 240
 Lys Ala Ile Pro Ala Gly Glu Leu Gln Val Ile Asp Lys Val Asp Ala
 245 250 255
 Ala Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp
 260 265 270
 Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Asp Ala Ile Lys Ala Ser
 275 280 285
 Thr Gly Gly Ala Tyr Gln Ser Tyr Lys Phe Ile Pro Ala Leu Glu Ala
 290 295 300
 Ala Val Lys Gln Ser Tyr Ala Ala Thr Val Ala Thr Ala Pro Ala Val
 305 310 315 320
 Lys Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile Thr Ala Met
 325 330 335
 Ser Gln Ala Gln Lys Ala Ala Lys Pro Ala Ala Ala Val Thr Gly Thr
 340 345 350
 Ala Thr Ser Ala Val Gly Ala Ala Thr Gly Ala Ala Thr Ala Ala Ala
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Gly Gly Tyr Lys Val
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<400> 197

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35 40 45

Thr Pro Ala Thr Pro Ala Thr Pro Ala Ala Val Pro Ser Gly Lys Ala
50 55 60

Thr Thr Glu Glu Gln Lys Leu Ile Glu Lys Ile Asn Ala Gly Phe Lys
65 70 75 80

Ala Ala Val Ala Ala Ala Ala Val Val Pro Pro Ala Asp Lys Tyr Lys
85 90 95

Thr Phe Val Glu Thr Phe Gly Thr Ala Thr Asn Lys Ala Phe Val Glu
100 105 110

Gly Leu Ala Ser Gly Tyr Ala Asp Gln Ser Lys Asn Gln Leu Thr Ser
115 120 125

Lys Leu Asp Ala Ala Leu Lys Leu Ala Tyr Glu Ala Ala Gln Gly Ala
130 135 140

Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala Thr Leu Thr Glu Ala
145 150 155 160

Leu Arg Val Ile Ala Gly Thr Leu Glu Val His Ala Val Lys Pro Ala
165 170 175

Ala Glu Glu Val Lys Val Gly Ala Ile Pro Ala Ala Glu Val Gln Leu
180 185 190

Ile Asp Lys Val Asp Ala Ala Tyr Arg Thr Ala Ala Thr Ala Ala Asn
195 200 205

Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu Asn Thr Phe Asn
210 215 220

100H94~2.TXT

Asn Ala Ile Lys Val Ser Leu Gly Ala Ala Tyr Asp Ser Tyr Lys Phe
225 230 235 240

Ile Pro Thr Leu Val Ala Ala Val Lys Gln Ala Tyr Ala Ala Lys Gln
245 250 255

Ala Thr Ala Pro Glu Val Lys Tyr Thr Val Ser Glu Thr Ala Leu Lys
260 265 270

Lys Ala Val Thr Ala Met Ser Glu Ala Glu Lys Glu Ala Thr Pro Ala
275 280 285

Ala Ala Ala Thr Ala Thr Pro Thr Pro Ala Ala Ala Thr Ala Thr Ala
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Thr Ala Thr Pro Ala Ala Ala Thr Ala Thr Pro Ala Ala Ala Gly Gly
325 330 335

Tyr Lys Val

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Gly Gly Lys Ala Thr Thr Asp Glu Gln Lys Leu Leu Glu Asp Val Asn
50 55 60

Ala Gly Phe Lys Ala Ala Val Ala Ala Ala Ala Asn Ala Pro Pro Ala
65 70 75 80

Asp Lys Phe Lys Ile Phe Glu Ala Ala Phe Ser Glu Ser Ser Lys Gly
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Leu Leu Ala Thr Ser Ala Ala Lys Ala Pro Gly Leu Ile Pro Lys Leu
100 105 110

100H94~2.TXT

Asp Thr Ala Tyr Asp Val Ala Tyr Lys Ala Ala Glu Gly Ala Thr Pro
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Glu Ala Lys Tyr Asp Ala Phe Val Thr Ala Leu Thr Glu Ala Leu Arg
130 135 140

Val Ile Ala Gly Ala Leu Glu Val His Ala Val Lys Pro Ala Thr Glu
145 150 155 160

Glu Val Pro Ala Ala Lys Ile Pro Thr Gly Glu Leu Gln Ile Val Asp
165 170 175

Lys Ile Asp Ala Ala Phe Lys Ile Ala Ala Thr Ala Ala Asn Ala Ala
180 185 190

Pro Thr Asn Asp Lys Phe Thr Val Phe Glu Ser Ala Phe Asn Lys Ala
195 200 205

Leu Asn Glu Cys Thr Gly Gly Ala Tyr Glu Thr Tyr Lys Phe Ile Pro
210 215 220

Ser Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala
225 230 235 240

Ala Pro Glu Val Lys Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala
245 250 255

Ile Thr Ala Met Thr Gln Ala Gln Lys Ala Gly Lys Pro Ala Ala Ala
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Ala Gly Ala Ala Thr Ala Ala Ala Gly Gly Tyr Lys Ala
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Ala Ala Ala Ala Thr Pro Ala Thr Pro Ala Ala Thr Pro Ala Ala Gly
35 40 45

Gly Gly Lys Ala Thr Thr Asp Glu Gln Lys Leu Leu Glu Asp Val Asn
Page 161

50

55

Ala Gly Phe Lys Ala Ala Val Ala Ala Asp Ala Asn Ala Pro Pro Ala
65 70 75 80

Asp Lys Phe Lys Ile Phe Glu Ala Ala Phe Ser Glu Ser Cys Lys Gly
85 90 95

Leu Leu Ala Thr Ser Asp Ala Lys Ala Pro Gly Leu Ile Leu Lys Leu
100 105 110

Asp Thr Asp Tyr Asp Val Ala Tyr Lys Ala Gly Glu Gly Ala Thr Pro
115 120 125

Glu Ala Lys Tyr Asp Ala Phe Val Thr Ala Leu Thr Glu Ala Leu Arg
130 135 140

Val Ile Ala Gly Ala Leu Glu Val His Ala Val Lys Pro Ala Thr Glu
145 150 155 160

Glu Val Pro Ala Ala Lys Ile Pro Thr Gly Glu Leu Gln Ile Val Asp
165 170 175

Lys Ile Asp Ala Ala Phe Lys Ile Ala Ala Thr Ala Ala Asn Ala Ala
180 185 190

Pro Thr Asn Asp Lys Phe Thr Val Phe Glu Ser Ala Phe Asn Lys Ala
195 200 205

Leu Lys Glu Cys Thr Gly Gly Ala Tyr Glu Thr Tyr Lys Phe Ile Pro
210 215 220

Ser Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Thr Thr Val Ala Ala
225 230 235 240

Ala Pro Glu Val Lys Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala
245 250 255

Ile Thr Ala Met Ser Gln Ala Gln Lys Val Ala Lys Pro Ala Ala Ala
260 265 270

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Ala Gly Gly Ala Thr Ala Ala Ala Gly Gly Tyr Lys Ala
290 295 300

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<400> 200

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Ala Thr Pro Ala Ala Ala Gly Ala Glu Ala Gly Lys Ala Thr Thr Glu
 35 40 45

Glu Gln Lys Leu Ile Glu Asp Ile Asn Val Gly Phe Lys Ala Ala Val
 50 55 60

Ala Ala Ala Ala Ser Val Pro Ala Ala Asp Lys Phe Lys Thr Phe Glu
 65 70 75 80

Ala Ala Phe Thr Ser Ser Ser Lys Ala Ala Thr Ala Lys Ala Pro Gly
 85 90 95

Leu Val Pro Lys Leu Asp Ala Ala Tyr Ser Val Ala Tyr Lys Ala Ala
 100 105 110

Val Gly Ala Thr Pro Glu Ala Lys Phe Asp Ser Phe Val Ala Ser Leu
 115 120 125

Thr Glu Ala Leu Arg Val Ile Ala Gly Ala Leu Glu Val His Ala Val
 130 135 140

Lys Pro Val Thr Glu Asp Pro Ala Trp Pro Lys Ile Pro Ala Gly Glu
 145 150 155 160

Leu Gln Ile Ile Asp Lys Ile Asp Ala Ala Phe Lys Val Ala Ala Thr
 165 170 175

Ala Ala Ala Thr Ala Pro Ala Asp Asp Lys Phe Thr Val Phe Glu Ala
 180 185 190

Ala Phe Asn Lys Ala Ile Lys Glu Ser Thr Gly Gly Ala Tyr Asp Thr
 195 200 205

Tyr Lys Cys Ile Pro Ser Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala
 210 215 220

Ala Thr Val Ala Ala Ala Pro Gln Val Lys Tyr Ala Val Phe Glu Ala
 225 230 235 240

Ala Leu Thr Lys Ala Ile Thr Ala Met Ser Glu Val Gln Lys Val Ser
 245 250 255

Gln Pro Ala Thr Gly Ala Ala Thr Val Ala Ala Gly Ala Ala Thr Thr
 260 265 270

100H94~2.TXT

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Lys Val
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<213> Holcus lanatus

<400> 201

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Gly Phe Lys Thr Ala Val Ala Ala Ala Ala Asn Val Pro Pro Ala Asp
35 40 45

Lys Tyr Lys Thr Phe Glu Ala Ala Phe Thr Ala Ser Ser Lys Ala Ser
50 55 60

Ile Ala Ala Ala Ala Thr Lys Ala Pro Gly Leu Ile Pro Gln Leu Asn
65 70 75 80

Ala Ala Thr Asn Thr Ala Tyr Ala Ala Ala Gln Gly Ala Thr Pro Glu
85 90 95

Ala Lys Tyr Asp Ala Phe Val Thr Thr Leu Thr Glu Ala Leu Arg Val
100 105 110

Ile Ala Gly Ala Leu Glu Val His Ala Val Lys Pro Ala Thr Glu Glu
115 120 125

Val Gly Ala Ala Lys Ile Pro Ala Gly Glu Leu Gln Ile Val Asp Lys
130 135 140

Ile Asp Ala Ala Phe Arg Ile Ala Ala Thr Ala Ala Asn Ala Ala Pro
145 150 155 160

Val Asn Asp Lys Phe Thr Val Phe Glu Gly Ala Phe Asn Lys Ala Ile
165 170 175

Lys Glu Ser Thr Gly Gly Ala Tyr Glu Ala Tyr Lys Phe Ile Pro Ser
180 185 190

Leu Glu Thr Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Thr Ala
195 200 205

100H94~2.TXT

Pro Glu Val Lys Tyr Thr Val Phe Glu Thr Ala Leu Lys Lys Ala Ile
210 215 220

Thr Ala Met Ser Glu Ala Gln Lys Glu Ala Lys Pro Val Ala Ala Ala
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Ala Ala Ala Gly Gly Tyr Lys Val
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<400> 202

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Ala Thr Pro Ala Ala Ala Gly Ala Glu Ala Gly Lys Ala Thr Thr Glu
35 40 45

Glu Gln Lys Leu Ile Glu Asp Ile Asn Val Gly Phe Lys Ala Ala Val
50 55 60

Ala Ala Ala Ala Ser Val Pro Ala Ala Asp Lys Phe Lys Thr Phe Glu
65 70 75 80

Ala Ala Phe Thr Ser Ser Ser Lys Ala Ala Thr Ala Lys Ala Pro Gly
85 90 95

Leu Val Pro Lys Leu Asp Ala Ala Tyr Ser Val Ser Tyr Lys Ala Ala
100 105 110

Val Gly Ala Thr Pro Glu Ala Lys Phe Asp Ser Phe Val Ala Ser Leu
115 120 125

Thr Glu Ala Leu Arg Val Ile Ala Gly Ala Leu Glu Val His Ala Val
130 135 140

Lys Pro Val Thr Glu Glu Pro Gly Met Ala Lys Ile Pro Ala Gly Glu
145 150 155 160

Leu Gln Ile Ile Asp Lys Ile Asp Ala Ala Phe Lys Val Ala Ala Thr
165 170 175

100H94~2.TXT

Ala Ala Ala Thr Ala Pro Ala Asp Thr Val Phe Glu Ala Ala Phe Asn
180 185 190

Lys Ala Ile Lys Glu Ser Thr Gly Gly Ala Tyr Asp Thr Tyr Lys Cys
195 200 205

Ile Pro Ser Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val
210 215 220

Ala Ala Ala Pro Gln Val Lys Tyr Ala Val Phe Glu Ala Ala Leu Thr
225 230 235 240

Lys Ala Ile Thr Ala Met Ser Glu Val Gln Lys Val Ser Gln Pro Ala
245 250 255

Thr Gly Ala Ala Thr Val Ala Ala Gly Ala Ala Thr Thr Ala Ala Gly
260 265 270

Ala Ala Ser Gly Ala Ala Thr Val Ala Ala Gly Gly Tyr Lys Val
275 280 285

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<211> 296

<212> PRT

<213> Holcus lanatus

<400> 203

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Thr Thr Pro Ala Ala Ala Gly Ala Ala Ala Gly Lys Ile Thr Pro Thr
35 40 45

Gln Glu Gln Lys Leu Met Glu Asp Ile Asn Val Gly Phe Lys Ala Ala
50 55 60

Val Ala Ala Ala Ala Gly Ala Pro Pro Ala Asp Lys Phe Lys Thr Phe
65 70 75 80

Gln Ala Ala Phe Ser Ala Ser Val Glu Ala Ser Ala Ala Lys Leu Asn
85 90 95

Ala Ala Gln Ala Pro Gly Phe Val Ser His Val Ala Ala Thr Ser Asp
100 105 110

Ala Thr Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu Ala Lys Phe Asp
115 120 125

Ser Phe Val Ala Ala Phe Thr Glu Ala Leu Arg Val Ile Ala Gly Val
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135

Leu Lys Val His Ala Val Lys Pro Ile Thr Glu Glu Ile Gly Ala Ala
145 150 155 160

Lys Ile Pro Ala Gly Glu Leu Gln Ile Ile Asp Lys Ile Asp Ala Ala
165 170 175

Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys
180 185 190

Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Glu Ser Thr
195 200 205

Gly Gly Ala Tyr Asp Thr Tyr Lys Ser Ile Pro Ser Leu Glu Ala Ala
210 215 220

Val Lys Gln Ala Tyr Ala Ala Thr Ile Ala Ala Pro Glu Val Lys
225 230 235 240

Phe Ala Val Phe Lys Ala Ala Leu Thr Lys Ala Ile Thr Ala Met Ala
245 250 255

Glu Val Gln Lys Val Ser Lys Pro Val Ala Gly Ala Ala Thr Ala Ala
260 265 270

Thr Gly Ala Ala Thr Gly Ala Ala Gly Ala Ala Thr Gly Ala Ala Thr
275 280 285

Val Ser Ala Gly Gly Tyr Lys Val
290 295

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Ala Thr Pro Ala Ala Ala Gly Ala Ala Ala Gly Lys Ile Thr Pro Thr
35 40 45

Gln Glu Gln Lys Leu Met Glu Asp Ile Asn Val Gly Phe Lys Ala Ala
50 55 60

Val Ala Ala Ala Ala Gly Ala Pro Pro Ala Asp Lys Phe Lys Thr Phe
65 70 75 80

100H94~2.TXT

Gln Ala Ala Phe Ser Ala Ser Val Glu Ala Ser Ala Ala Lys Leu Asn
85 90 95

Ala Ala Gln Ala Pro Gly Phe Val Ser His Val Ala Ala Thr Ser Asp
100 105 110

Ala Thr Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu Ala Lys Phe Asp
115 120 125

Ser Phe Val Ala Ala Phe Thr Glu Ala Leu Arg Ile Ile Ala Gly Val
130 135 140

Leu Lys Val His Ala Val Lys Pro Ile Thr Glu Glu Thr Gly Ala Ala
145 150 155 160

Lys Ile Pro Ala Gly Glu Gln Gln Ile Ile Asp Lys Ile Asp Ala Ala
165 170 175

Phe Lys Val Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys
180 185 190

Phe Thr Val Phe Glu Ala Ala Phe Asn Asn Ala Ile Lys Glu Ser Thr
195 200 205

Gly Gly Ala Tyr Asp Thr Tyr Lys Ser Ile Pro Ser Leu Glu Ala Ala
210 215 220

Val Lys Gln Ala Tyr Ala Ala Thr Ile Ala Ala Ala Pro Glu Val Lys
225 230 235 240

Phe Ala Val Phe Lys Ala Ala Leu Thr Lys Ala Ile Thr Ala Met Ala
245 250 255

Glu Val Gln Lys Val Ser Lys Pro Val Ala Gly Ala Ala Thr Val Ala
260 265 270

Ala Gly Ala Ala Thr Ala Ala Thr Gly Ala Ala Thr Gly Ala Ala Gly
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Ala Ala Thr Gly Ala Ala Thr Val Ser Ala Gly Gly Tyr Lys Val
290 295 300

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<211> 295
<212> PRT
<213> Phleum pratense

<400> 205

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100H94~2.TXT

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 20 25 30
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 35 40 45
 Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Asp Ile Asn Val Gly
 50 55 60
 Phe Lys Ala Ala Val Ala Ala Ala Ala Ser Val Pro Ala Ala Asp Lys
 65 70 75 80
 Phe Lys Thr Phe Glu Ala Ala Phe Thr Ser Ser Ser Lys Ala Ala Thr
 85 90 95
 Ala Lys Ala Pro Gly Leu Val Pro Lys Leu Asp Ala Ala Tyr Ser Val
 100 105 110
 Ala Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu Ala Lys Phe Asp Ser
 115 120 125
 Phe Val Ala Ser Leu Thr Glu Ala Leu Arg Val Ile Ala Gly Ala Leu
 130 135 140
 Glu Val His Ala Val Lys Pro Val Thr Glu Glu Pro Gly Met Ala Lys
 145 150 155 160
 Ile Pro Ala Gly Glu Leu Gln Ile Ile Asp Lys Ile Asp Ala Ala Phe
 165 170 175
 Lys Val Ala Ala Thr Ala Ala Ala Thr Ala Pro Ala Asp Asp Lys Phe
 180 185 190
 Thr Val Phe Glu Ala Ala Phe Asn Lys Ala Ile Lys Glu Ser Thr Gly
 195 200 205
 Gly Ala Tyr Asp Thr Tyr Lys Cys Ile Pro Ser Leu Glu Ala Ala Val
 210 215 220
 Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala Ala Pro Gln Val Lys Tyr
 225 230 235 240
 Ala Val Phe Glu Ala Ala Leu Thr Lys Ala Ile Thr Ala Met Ser Glu
 245 250 255
 Val Gln Lys Val Ser Gln Pro Ala Thr Gly Ala Ala Thr Val Ala Ala
 260 265 270
 Gly Ala Ala Thr Thr Ala Ala Gly Ala Ala Ser Gly Ala Ala Thr Val
 275 280 285

100H94~2.TXT

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290 295

<210> 206
<211> 281
<212> PRT
<213> Phleum pratense

<400> 206

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20 25 30

Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu Asp Ile Asn
35 40 45

Val Gly Phe Lys Ala Ala Val Ala Ala Ala Ala Ser Val Pro Ala Gly
50 55 60

Asp Lys Phe Lys Thr Phe Glu Ala Ala Phe Thr Ser Ser Ser Lys Ala
65 70 75 80

Ala Thr Ala Lys Ala Pro Gly Leu Val Pro Lys Leu Asp Ala Ala Tyr
85 90 95

Ser Val Ala Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu Ala Lys Phe
100 105 110

Asp Ser Phe Val Ala Ser Leu Thr Glu Ala Leu Arg Val Ile Ala Gly
115 120 125

Ala Leu Glu Val His Ala Val Lys Pro Val Thr Glu Glu Pro Gly Met
130 135 140

Ala Lys Ile Pro Ala Gly Glu Leu Gln Ile Ile Asp Lys Ile Asp Ala
145 150 155 160

Ala Phe Lys Val Ala Ala Thr Ala Ala Ala Thr Ala Pro Ala Asp Asp
165 170 175

Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Lys Ala Ile Lys Glu Ser
180 185 190

Thr Gly Gly Ala Tyr Asp Thr Tyr Lys Cys Ile Pro Ser Leu Glu Ala
195 200 205

Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala Ala Pro Gln Val
210 215 220

100H94~2.TXT

Lys Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala Ile Thr Ala Met
 225 230 235 240

Ser Glu Val Gln Lys Val Ser Gln Pro Ala Thr Gly Ala Ala Thr Val
 245 250 255

Ala Ala Gly Ala Ala Thr Thr Ala Thr Gly Ala Ala Ser Gly Ala Ala
 260 265 270

Thr Val Ala Ala Gly Gly Tyr Lys Val
 275 280

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<211> 284

<212> PRT

<213> Phleum pratense

<400> 207

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Ser Tyr Thr Ala Asp Ala Gly Tyr Ala Pro Ala Thr Pro Ala Ala Ala
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Gly Ala Ala Ala Gly Lys Ala Thr Thr Glu Glu Gln Lys Leu Ile Glu
 35 40 45

Asp Ile Asn Val Gly Phe Lys Ala Ala Val Ala Ala Ala Ala Ser Val
 50 55 60

Pro Ala Ala Asp Lys Phe Lys Thr Phe Glu Ala Ala Phe Thr Ser Ser
 65 70 75 80

Ser Lys Ala Ala Ala Ala Lys Ala Pro Gly Leu Val Pro Lys Leu Asp
 85 90 95

Ala Ala Tyr Ser Val Ala Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu
 100 105 110

Ala Lys Phe Asp Ser Phe Val Ala Ser Leu Thr Glu Ala Leu Arg Val
 115 120 125

Ile Ala Gly Ala Leu Glu Val His Ala Val Lys Pro Val Thr Glu Glu
 130 135 140

Pro Gly Met Ala Lys Ile Pro Ala Gly Glu Leu Gln Ile Ile Asp Lys
 145 150 155 160

Ile Asp Ala Ala Phe Lys Val Ala Ala Thr Ala Ala Ala Thr Ala Pro
 165 170 175

Ala Asp Asp Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Lys Ala Ile
 Page 171

180

185

190

Lys Glu Ser Thr Gly Gly Ala Tyr Asp Thr Tyr Lys Cys Ile Pro Ser
 195 200 205

Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala Ala
 210 215 220

Pro Gln Val Lys Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala Ile
 225 230 235 240

Thr Ala Met Ser Glu Val Gln Lys Val Ser Gln Pro Ala Thr Gly Ala
 245 250 255

Ala Thr Val Ala Ala Gly Ala Ala Thr Thr Ala Ala Gly Ala Ala Ser
 260 265 270

Gly Ala Ala Thr Val Ala Ala Gly Gly Tyr Lys Val
 275 280

<210> 208

<211> 266

<212> PRT

<213> Phleum pratense

<400> 208

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Val Gly Phe Lys Ala Ala Val Ala Ala Ala Ala Ser Val Pro Ala Ala
 35 40 45

Asp Lys Phe Lys Thr Phe Glu Ala Ala Phe Thr Ser Ser Ser Lys Ala
 50 55 60

Ala Thr Ala Lys Ala Pro Gly Leu Val Pro Lys Leu Asp Ala Ala Tyr
 65 70 75 80

Ser Val Ala Tyr Lys Ala Ala Val Gly Ala Thr Pro Glu Ala Lys Phe
 85 90 95

Asp Ser Phe Val Ala Ser Leu Thr Glu Ala Leu Arg Val Ile Ala Gly
 100 105 110

Ala Leu Glu Val His Ala Val Lys Pro Val Thr Glu Glu Pro Gly Met
 115 120 125

Ala Lys Ile Pro Ala Gly Glu Leu Gln Ile Ile Asp Lys Ile Asp Ala
 130 135 140

100H94~2.TXT

Ala Phe Lys Val Ala Ala Thr Ala Ala Ala Thr Ala Pro Ala Asp Asp
145 150 155 160

Lys Phe Thr Val Phe Glu Ala Ala Phe Asn Lys Ala Ile Lys Glu Ser
165 170 175

Thr Gly Gly Ala Tyr Asp Thr Tyr Lys Cys Ile Pro Ser Leu Glu Ala
180 185 190

Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala Ala Pro Gln Val
195 200 205

Lys Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala Ile Thr Ala Met
210 215 220

Ser Glu Val Gln Lys Val Ser Gln Pro Ala Thr Gly Ala Ala Thr Val
225 230 235 240

Ala Ala Gly Ala Ala Thr Gly Thr Ala Ala Gly Ala Ala Ser Gly Ala
245 250 255

Ala Thr Val Ala Ala Gly Gly Tyr Lys Val
260 265

<210> 209
<211> 240
<212> PRT
<213> Phleum pratense
<400> 209

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20 25 30

Ala Phe Thr Val Leu Asp Arg Gly Ser Thr Glu Gln Ser Lys Ala Glu
35 40 45

Glu Thr Lys Met Pro Glu Leu Ser Ser Lys Leu Val Asp Ala Tyr Met
50 55 60

Ala Ala Phe Lys Ala Ser Thr Gly Gly Thr Gln Glu Ala Lys Tyr Asp
65 70 75 80

Ala Phe Val Thr Thr Leu Thr Glu Ala Leu Arg Val Ile Ala Gly Ala
85 90 95

Leu Glu Val His Ala Val Lys Pro Ala Thr Glu Glu Val Pro Ala Ala
100 105 110

100H94~2.TXT

Lys Ile Pro Ala Gly Asp Leu Gln Val Val Asp Lys Ile Asp Ala Ser
115 120 125

Phe Lys Ile Ala Ala Thr Ala Ala Asn Ala Ala Pro Ala Asn Asp Lys
130 135 140

Phe Thr Val Phe Glu Thr Ala Phe Asn Lys Ala Leu Lys Glu Ser Thr
145 150 155 160

Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ser Leu Glu Ala Ala
165 170 175

Val Lys Gln Ala Tyr Ala Ser Thr Val Ala Ala Ala Pro Glu Val Lys
180 185 190

Tyr Ala Val Phe Glu Ala Ala Leu Thr Lys Ala Ile Thr Ala Met Ser
195 200 205

Gln Ala Gln Lys Val Ala Gln Pro Ala Ala Ala Ala Thr Gly Ala Ala
210 215 220

Thr Val Ala Ala Gly Ala Ala Thr Thr Ala Ala Gly Gly Tyr Lys Val
225 230 235 240

<210> 210
<211> 294
<212> PRT
<213> Phalaris aquatica

<400> 210

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20 25 30

Thr Pro Ala Thr Pro Ala Val Pro Gly Ala Ala Ala Gly Lys Ala Thr
35 40 45

Thr His Glu Gln Lys Leu Ile Glu Asp Ile Asn Ala Ala Phe Lys Trp
50 55 60

Trp Pro Ala Ser Ala Pro Pro Ala Asp Lys Tyr Lys Thr Phe Glu Thr
65 70 75 80

Ala Phe Ser Lys Ala Asn Ile Ala Gly Ala Ser Thr Lys Gly Leu Asp
85 90 95

Ala Ala Tyr Ser Val Val Tyr Asn Thr Ala Ala Gly Ala Thr Pro Glu
100 105 110

100H94~2.TXT

Ala Lys Tyr Asp Ser Phe Val Thr Ala Leu Thr Glu Ala Leu Arg Ile
 115 120 125

Met Ala Gly Thr Leu Glu Val His Ala Val Lys Pro Ala Thr Glu Glu
 130 135 140

Glu Val Pro Ser Ala Lys Ile Leu Arg Ala Asn Ser Arg Ser Ser Thr
 145 150 155 160

Arg Ser Ser Arg Phe Lys Ile Ala Ala Thr Val Ala Thr Pro Leu Ser
 165 170 175

His Ser Thr Ala Ala Asn Ser Ala Pro Ala Asn Asp Lys Phe Thr Val
 180 185 190

Phe Glu Gly Ala Phe Asn Lys Ala Ile Lys Glu Arg His Gly Gly Pro
 195 200 205

Thr Glu Thr Tyr Lys Phe Ile Pro Ser Leu Glu Ala Ala Val Lys Gln
 210 215 220

Ala Tyr Gly Ala Thr Val Ala Arg Ala Pro Glu Val Lys Tyr Ala Val
 225 230 235 240

Phe Glu Ala Gly Leu Thr Lys Ala Ile Thr Ala Met Ser Glu Ala Gln
 245 250 255

Lys Val Ala Lys Pro Val Arg Leu Ser Pro Gln Pro Pro Gln Val Leu
 260 265 270

Pro Leu Ala Ala Gly Gly Ala Ala Thr Val Ala Ala Ala Ser Asp Ser
 275 280 285

Arg Gly Gly Tyr Lys Val
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<210> 211
 <211> 320
 <212> PRT
 <213> Phalaris aquatica

<400> 211

Met Ala Val Gln Lys Tyr Thr Met Ala Leu Phe Leu Ala Val Ala Leu
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Val Ala Gly Pro Ala Ala Pro Thr Pro Thr Pro Arg Thr Pro Pro
 20 25 30

Leu Leu Pro Pro Pro Arg Ala Arg Asp Lys Ala Thr Leu Thr Ser Arg
 35 40 45

Ser Val Glu Asp Ile Asn Ala Ala Ser Arg Arg Pro Trp Trp Ala Ser
 Page 175

60

<211> 313
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 <213> Hordeum vulgare

<400> 212

Met Ala Asn Ser Gly Arg Glu His Ser Ala Val Pro Arg Arg Arg Asn
 1 5 10 15

Leu Val Ala Leu Val Pro Arg His Gly Cys Tyr Ala Glu Phe Ser Leu
 20 25 30

Tyr Val Cys Val Gly Asn Ile Asn Ala Pro Phe Pro Val Phe Asn Arg
 35 40 45

Thr Thr Phe Ile Ala Asn Ala Gly Ile Glu Ala Glu Leu Glu Pro His
 50 55 60

Phe Leu Leu Leu Leu Phe Thr Phe Ser Ser Ser Ser Ser Phe Phe Thr
 65 70 75 80

Leu Leu Lys Thr Met Ile His Phe Thr Asp Arg Ser Asp Asn Lys Asn
 85 90 95

Lys Ala Met Met Arg Gly Arg Glu Phe Arg Lys Ala Phe Ala Glu Val
 100 105 110

Leu Lys Gly Ala Ala Thr Gly Gln Ile Ala Gly Gln Ser Ser Ser Met
 115 120 125

Ala Lys Leu Ser Ser Ser Leu Glu Leu Ser Tyr Lys Leu Ala Tyr Asp
 130 135 140

Lys Ala Gln Gly Ala Thr Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala
 145 150 155 160

Thr Leu Thr Glu Ser Leu Arg Val Ile Ser Gly Thr Leu Glu Val His
 165 170 175

Ser Val Lys Pro Ala Ala Glu Glu Val Lys Gly Val Pro Ala Gly Glu
 180 185 190

Leu Lys Ala Ile Asp Gln Val Asp Ala Ala Phe Arg Thr Ala Ala Thr
 195 200 205

Ala Ala Asp Ala Ala Pro Ala Asn Asp Lys Phe Thr Val Phe Glu Ser
 210 215 220

Leu Gln Gln Gly Pro Ser Arg Lys Pro Arg Gly Gly Ala Tyr Glu Ser
 225 230 235 240

Tyr Lys Phe Ile Pro Ala Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala
 245 250 255

100H94~2.TXT

Ala Thr Val Ala Ala Ala Pro Glu Val Lys Phe Thr Val Phe Gln Thr
260 265 270

Ala Leu Ser Lys Ala Ile Asn Ala Met Thr Gln Ala Gln Lys Val Ala
275 280 285

Lys Pro Ala Ala Ala Ala Thr Ala Thr Ala Thr Val Ala Ala Gly Ala
290 295 300

Ala Ala Thr Ala Gly Asn Tyr Lys Val
305 310

<210> 213
<211> 179
<212> PRT
<213> Hordeum vulgare

<400> 213

Leu Glu Leu Ser Tyr Lys Leu Ala Tyr Asp Lys Ala Gln Gly Ala Thr
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Pro Glu Ala Lys Tyr Asp Ala Tyr Val Ala Thr Leu Thr Glu Ser Leu
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Arg Val Ile Ser Gly Thr Leu Glu Val His Ser Val Lys Pro Ala Ala
35 40 45

Glu Glu Val Lys Gly Val Pro Ala Gly Glu Leu Lys Ala Ile Asp Gln
50 55 60

Val Asp Ala Ala Phe Arg Thr Ala Ala Thr Ala Ala Asp Ala Ala Pro
65 70 75 80

Ala Asn Asp Lys Phe Thr Val Phe Glu Ser Leu Gln Gln Gly Pro Ser
85 90 95

Arg Lys Pro Arg Gly Gly Ala Tyr Glu Ser Tyr Lys Phe Ile Pro Ala
100 105 110

Leu Glu Ala Ala Val Lys Gln Ala Tyr Ala Ala Thr Val Ala Ala Ala
115 120 125

Pro Glu Val Lys Phe Thr Val Phe Gln Thr Ala Leu Ser Lys Ala Ile
130 135 140

Asn Ala Met Thr Gln Ala Gln Lys Val Ala Lys Pro Ala Ala Ala Ala
145 150 155 160

Thr Ala Thr Ala Thr Val Ala Ala Gly Ala Ala Ala Thr Ala Gly Asn
165 170 175

Tyr Lys Val

<210> 214
 <211> 210
 <212> PRT
 <213> *Vespula vulgaris*

<220>
 <221> MISC_FEATURE
 <222> (1)..(210)
 <223> where Xaa is any amino acid

<400> 214

Xaa Xaa Glu Ala Glu Phe Asn Asn Tyr Cys Lys Ile Lys Cys Leu Lys
 1 5 10 15

Gly Gly Val His Thr Ala Cys Lys Tyr Gly Ser Leu Lys Pro Asn Cys
 20 25 30

Gly Asn Lys Val Val Val Ser Tyr Gly Leu Thr Lys Gln Glu Lys Gln
 35 40 45

Asp Ile Leu Lys Glu His Asn Asp Phe Arg Gln Lys Ile Ala Arg Gly
 50 55 60

Leu Glu Thr Arg Gly Asn Pro Gly Pro Gln Pro Pro Ala Lys Asn Met
 65 70 75 80

Lys Asn Leu Val Trp Asn Asp Glu Leu Ala Tyr Val Ala Gln Val Trp
 85 90 95

Ala Asn Gln Cys Gln Tyr Gly His Asp Thr Cys Arg Asp Val Ala Lys
 100 105 110

Tyr Gln Val Gly Gln Asn Val Ala Leu Thr Gly Ser Thr Ala Ala Lys
 115 120 125

Tyr Asp Asp Pro Val Lys Leu Val Lys Met Trp Glu Asp Glu Val Lys
 130 135 140

Asp Tyr Asn Pro Lys Lys Lys Phe Ser Gly Asn Asp Phe Leu Lys Thr
 145 150 155 160

Gly His Tyr Thr Gln Met Val Trp Ala Asn Thr Lys Glu Val Gly Cys
 165 170 175

Gly Ser Ile Lys Tyr Ile Gln Glu Lys Trp His Lys His Tyr Leu Val
 180 185 190

Cys Asn Tyr Gly Pro Ser Gly Asn Phe Lys Asn Glu Glu Leu Tyr Gln
 195 200 205

Thr Lys
210

<210> 215
<211> 38
<212> DNA
<213> Artificial sequence

<220>
<223> oligonucleotide primer

<220>
<221> CDS
<222> (4)..(36)

<400> 215
ccg ctc gag aaa aga aac aat tat tgt aaa ata aaa tg
Leu Glu Lys Arg Asn Asn Tyr Cys Lys Ile Lys
1 5 10

38

<210> 216
<211> 11
<212> PRT
<213> Artificial sequence

<220>
<223> oligonucleotide primer

<400> 216

Leu Glu Lys Arg Asn Asn Tyr Cys Lys Ile Lys
1 5 10

<210> 217
<211> 6
<212> PRT
<213> Artificial sequence

<220>
<223> Kex2 cleavage site

<400> 217

Glu Ala Glu Ala Glu Phe
1 5

<210> 218
<211> 387
<212> DNA
<213> Dermatophagoides pteronyssinus

<220>
<221> CDS
<222> (1)..(387)

<220>
<221> mutation
<222> (16)..(18)

<220>
<221> mutation
<222> (43)..(45)

100H94~2.TXT

<220>
 <221> mutation
 <222> (88)..(90)

<220>
 <221> mutation
 <222> (184)..(186)

<220>
 <221> mutation
 <222> (220)..(222)

<220>
 <221> mutation
 <222> (244)..(246)

<400> 218
 gat caa gtc gat gtc gcc gat tgt gcc aac cat gaa atc aaa gaa gtt 48
 Asp Gln Val Asp Val Ala Asp Cys Ala Asn His Glu Ile Lys Glu Val
 1 5 10 15
 ttg gta cca gga tgt cat ggt tca gaa cca tgt atc att aac cgt ggt 96
 Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile Asn Arg Gly
 20 25 30
 aaa cca ttc caa ttg gaa gcc gtt ttc gaa gcc aac caa aac aca aaa 144
 Lys Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Thr Lys
 35 40 45
 acc gct aaa att gaa atc aaa gcc tca atc gat ggt tta tca gtt gat 192
 Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp
 50 55 60
 gtt ccc ggt atc gat cca aat gca tgc aat tac atg aaa tgc cca ttg 240
 Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu
 65 70 75 80
 gtt aat gga caa caa tat gat att aaa tat aca tgg aat gtt ccg aaa 288
 Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
 85 90 95
 att gca cca aaa tct gaa aat gtt gtc gtc act gtt aaa gtt atg ggt 336
 Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met Gly
 100 105 110
 gat gat ggt gtt ttg gcc tgt gct att gca act cat gct aaa atc cgc 384
 Asp Asp Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg
 115 120 125
 gat 387
 Asp

<210> 219
 <211> 129
 <212> PRT
 <213> Dermatophagoides pteronyssinus

<400> 219
 Asp Gln Val Asp Val Ala Asp Cys Ala Asn His Glu Ile Lys Glu Val
 1 5 10 15
 Leu Val Pro Gly Cys His Gly Ser Glu Pro Cys Ile Ile Asn Arg Gly
 20 25 30

100H94~2.TXT

Lys Pro Phe Gln Leu Glu Ala Val Phe Glu Ala Asn Gln Asn Thr Lys
35 40 45

Thr Ala Lys Ile Glu Ile Lys Ala Ser Ile Asp Gly Leu Ser Val Asp
50 55 60

Val Pro Gly Ile Asp Pro Asn Ala Cys Asn Tyr Met Lys Cys Pro Leu
65 70 75 80

Val Asn Gly Gln Gln Tyr Asp Ile Lys Tyr Thr Trp Asn Val Pro Lys
85 90 95

Ile Ala Pro Lys Ser Glu Asn Val Val Val Thr Val Lys Val Met Gly
100 105 110

Asp Asp Gly Val Leu Ala Cys Ala Ile Ala Thr His Ala Lys Ile Arg
115 120 125

Asp